(No Model.) 2 Sheets—Sheet 1.

J. W. TINCHER.

RAG CUTTING MACHINE.

No. 453,380. Patented June 2, 1891.

Fig. 1.

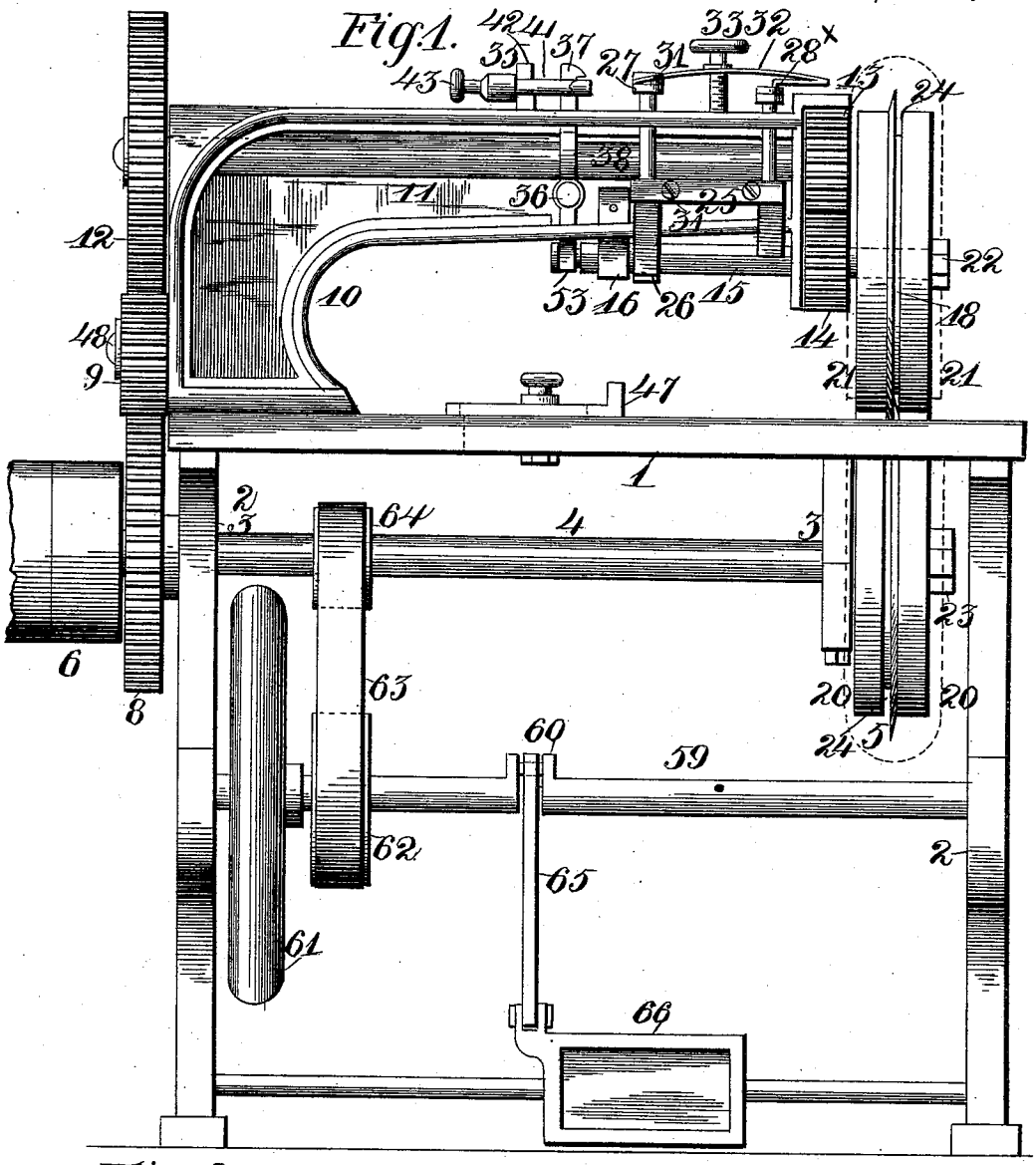


Fig. 5.

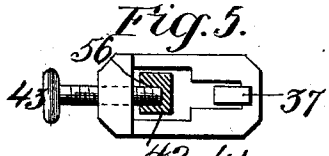


Fig. 3.

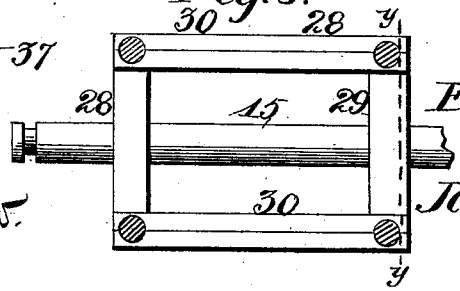
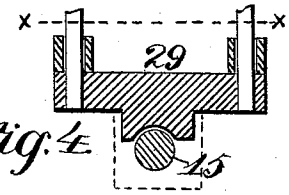


Fig. 4.



WITNESSES:

C. F. Keller.

E. E. Lonyan.

INVENTOR

James W. Tincher.

BY Hyde & Hyde,

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

J. W. TINCHER.

RAG CUTTING MACHINE.

No. 453,380. Patented June 2, 1891.

Fig. 2.

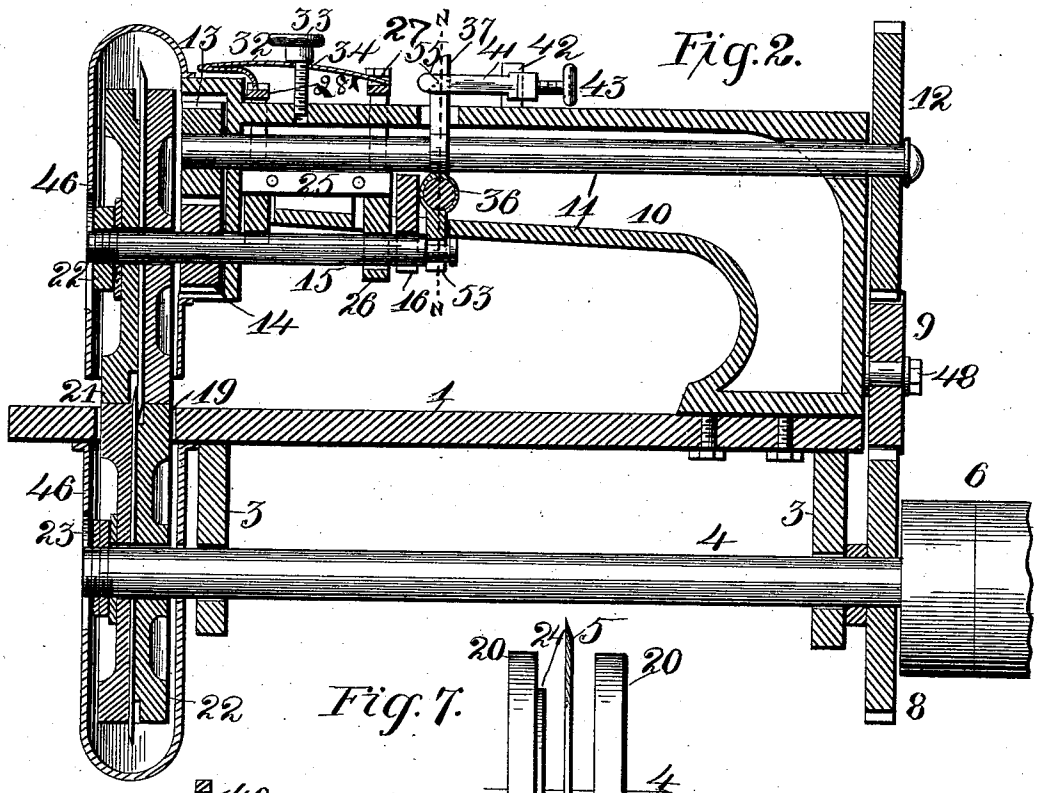


Fig. 7.

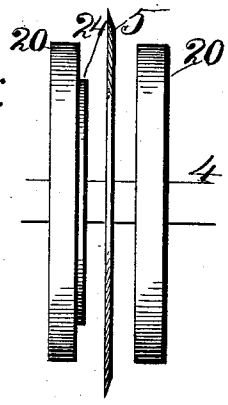


Fig. 6.

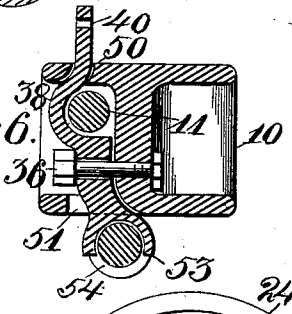


Fig. 9.

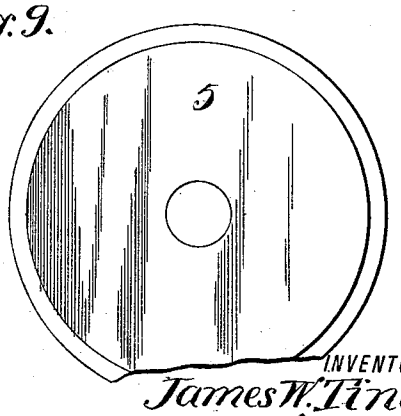
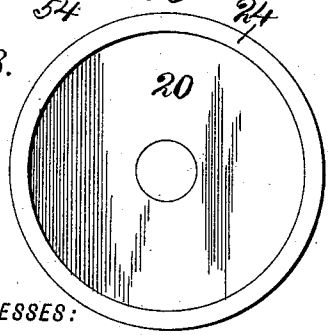


Fig. 8.



WITNESSES:

C. F. Keller.

E. E. Langan.

INVENTOR

James W. Tincher.

BY Higdon & Higdon

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES W. TINCHER, OF XENIA, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES T. EVANS, OF SAME PLACE.

RAG-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 453,380, dated June 2, 1891.

Application filed September 15, 1890. Serial No. 365,060. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. TINCHER, of Xenia, Clay county, Illinois, have invented certain new and useful Improvements in Rag and Leather Cutting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in machines for cutting rags or other analogous material; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

The object of my invention is to construct a machine to be used in the shoddy business to cut rags which are to be run through a machine that tears them all up, and said strips are then run through woolen cards made for the purpose. The material is then like the original wool, only shorter in fiber.

In the drawings which serve to illustrate my invention, Figure 1 is a front elevation of my complete invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a horizontal section of the tension device, taken on the like *x x*, Fig. 4. Fig. 4 is a vertical section of the same, taken on the line *y y* in Fig. 3. Fig. 5 is a top plan view of the connecting-link. Fig. 6 is a vertical cross-section taken on the line *z z* of Fig. 2. Fig. 7 is a side elevation of one of the disks or feed-rollers and rotary cutter detached. Fig. 8 is a front elevation of one of the disks or feed-rollers, and Fig. 9 is a front elevation of one of the rotary cutters.

Referring to the drawings, 1 represents the table of my improved rag-cutter, which is mounted on a frame or table 2. Suspended directly beneath said table 1 and mounted in bearings 3 3 is a horizontal shaft 4, which carries at one end a rotary cutter 5 and at the other a belt-pulley 6. Said shaft is also provided with a toothed wheel 8, situated between the belt-pulley and table 1. Said toothed wheel 8 is adapted to engage a pinion 9, which pinion is mounted on a stud 48, and which stud is secured in an arm 10, secured to table 1. Located in arm 10 is a horizontal shaft 11, which carries at each end thereof toothed wheels 12 and 13. Toothed wheel 12 of said shaft is adapted to engage in pinion-wheel 9, and toothed wheel 13 is adapted to engage in a toothed wheel 14, which wheel 14 is mounted on a short horizontal shaft 15. Said shaft 15 is suspended from arm 10, and is mounted on bearings 16 and a U-shaped recess formed in said arm. Said shaft 15 also carries at its outer end a rotary cutter 18, which overlaps cutter 5, mounted on shaft 4.

The cutters 5 and 18 overlap each other in a transverse slot 19, made in the plate 1, thereby forming a pair of rotary shears. Said rotary cutters are secured between two pairs of circular disks 20 and 21, respectively, and said pairs of disks are mounted on shafts 4 and 15, respectively, by means of nuts 22 and 23. The outer disk of cutter 18 is provided with a rabbet 24, formed around its periphery, to permit the overlapping portion of cutter 5 to move freely therein in its revolving motion. Likewise the inner disk of cutter 5 is provided with a similar rabbet formed around its periphery to permit cutter 18 to move therein. Said disks 21 are situated diametrically above disks 20, and the plane of the circumferences of disks 21 comes in contact with the plane of the circumferences of disks 20 at a point above the surface of table 1. The intensity of contact between said disks is regulated by an adjustable frame-tension device 25, which is located in arm 10. The inner end of said frame is provided with a bearing 26 for shaft 15 to rotate in, and the outer end is provided with a U-shaped, recess which fits over shaft 15. The four upright pieces of said frame pass through perforations made in the upper web of the arm 10 and connected at their tops by cross-pieces 27 and $28^{\times}$. The lower ends of said upright pieces are secured in plates 28 and 29. Plate 28 forms a bearing for shaft 15, and plate 29 has a U-shaped recess, which fits over shaft 15. Said plates pass through perforations made in the lower web of the arm 10. Said upright pieces are connected longitudinally by plates 30, which plates are composed of two pieces, and each piece is provided at its opposite ends with U-shaped recesses, and when said pieces are placed upon each other with the recesses facing each other they form a circular perforation, which fits over the upright pieces. Said pieces are

clamped over said upright pieces and upon each other by means of screws 31. On the cross-pieces which transversely connect the upright pieces a semi-elliptic spring 32, with one end bent upon itself and sprung outwardly from the body of the spring, is placed. One end of said spring bears on cross-piece 27 and the other or bent portion on cross-piece $28^{\times}$, and is held in said position by means of a thumb-screw 33, which passes through a perforation 34 in said spring and screws in the arm 10. When said screw 33 is screwed down, it presses on the spring, and said spring transmits its pressure to the frame 25, and said frame bears directly on the shaft 15, which carries disks 21, and thereby forms a yielding pressure between said disks 21 and 20. This yielding pressure is absolutely necessary in cutting rags of unequal thicknesses, as the elasticity of the spring will allow different thicknesses to pass between the disks without changing the adjustment.

The lateral adjustment between the rotary cutters is regulated by means of a device 35, attached to the shaft 15 and fulcrumed on the arm 10 by means of a set-screw 36. Said device consists of a vertical lever 37, the upper arm of which lever is provided with a curved portion 38, which fits freely over shaft 11. Said lever passes through rectangular slots 50 and 51, formed, respectively, in the upper and lower web of arm 10 and terminates at its lower extremity in a U-shaped recess 53, which fits in an annular groove 54, made in shaft 15. The upper end of said lever terminates in a rounded point, one corner thereof being cut away, and is provided with a small triangular recess 40, adapted to fit in a corresponding protuberance 55, formed in the inner surface of a connecting-link 41. Said connecting-link passes over a permanent plug 42, formed on or secured to said arm 10. Said plug 42 is provided with an indentation 56, which passes about half through its thickness, and is provided with screw-threads, which are adapted to receive a set-screw 43, which passes through the end of said connecting-link. Said connecting-link is also provided at one end with screw-threads adapted to receive set-screw 43. The screw passes through said connecting-link and screws in plug 42, and when the screw is tightened the connecting-link is drawn toward the plug, and consequently the upper end of the lever drawn thereto, (for the connecting-link passes over the upper end of said lever,) and the lever, pressing in an opposite direction, presses against the face of groove 54, formed in shaft 15, and pushes said shaft forward, and consequently the rotary cutter 18 against cutter 5. This adjustment is very desirable, for in cutting thin cloth the cutters should be closer together than in cutting heavy and coarse material.

46 represents sheet-iron guards or casings, one of which is secured to the arm 10 and the other to table 1. The object of these casings is to prevent cutting the limbs on the rotary cutters 5 and 18.

47 represents a gage to regulate the size of the strips to be cut.

When it is desired to use or operate the machine by means of a treadle, I secure in the frame 2 a horizontal shaft 59, which said shaft is provided with a crank 60, and has also mounted on it a fly-wheel 61 and a belt-pulley 62.

63 represents a short belt which passes over belt-pulley 62 and belt-pulley 64, which pulley 64 is mounted on shaft 4, and by means of a pitman 65, secured to crank 60 and to a treadle 66, said shaft 59 is revolved. When it is desired to revolve the shaft 4 by means of steam-power, a belt is passed over belt-pulley 6, and the motor-wheel of the engine by which it is desired to operate said cutter. When the cutter is operated by steam-power, the belt 63 is removed from belt-pulley 62.

To enable others to use my invention, I will proceed to describe its application.

The article to be cut is inserted between the rotary cutters 5 and 18, and the disks 20 and 21, acting as feeders, will force the article forward and keep it continuously in contact with the cutters. The cutters being arranged between the disks or feeders, the material on both sides of said cutters is held at the same tension, thereby making it cut more easily and smoothly.

Having fully described my invention, what I claim is—

1. In a rag-cutter having two rotary cutters, one of which is situated diametrically above the other, with its edge overlapping the edge of the other, the combination of four disks, one of which is located on each side of each cutter, a tension device 25, by which the vertical pressure between said disks is regulated, a shaft 15, a vertical lever 37, connected to said shaft so as to permit revolution of same, a projecting plug 42, a link 41, which connects plug and lever, a set-screw 43, which passes through one end of connecting-link and into the plug, whereby the lateral pressure between the rotary cutters is regulated, and driving connections or gearing, substantially as set forth.

2. In a rag-cutter having two rotary cutters, one of which is situated diametrically above the other, with its edge overlapping the edge of the other, the combination of four disks, one of which is located on each side of each cutter, a frame provided with bearings for the reception of the shaft of the upper cutter, and a spring provided with an adjusting set-screw bearing against said frame, thereby exerting pressure on said shaft and regulating the vertical pressure between the disks, a vertical lever connected to the upper shaft, so as to permit the revolution of the latter, a projecting plug 42, a link 41, which connects the plug and lever, and a set-screw 43, which passes through one end of the connecting-link and into the plug, whereby the

lateral pressure between the rotary cutters is regulated, substantially as described.

3. In a rag-cutter, the combination of two rotary cutters, a frame 25, having at one end thereof a bearing 26 to receive the shaft supporting the upper cutter and at the opposite end a projection having a U-shaped recess bearing against said shaft, uprights projecting from said frame, cross-bars connecting said uprights, a spring connecting said cross-bars, and an adjusting-screw to regulate said spring, substantially as described.

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

JAMES W. TINCHER.

Witnesses:
T. W. KEPLEY,
A. L. EVANS.