

W. RAEUCHLE.

Improvement in Cutting Machines.

PATENTED APR 18 187

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Fig. 1

Fig. 2.

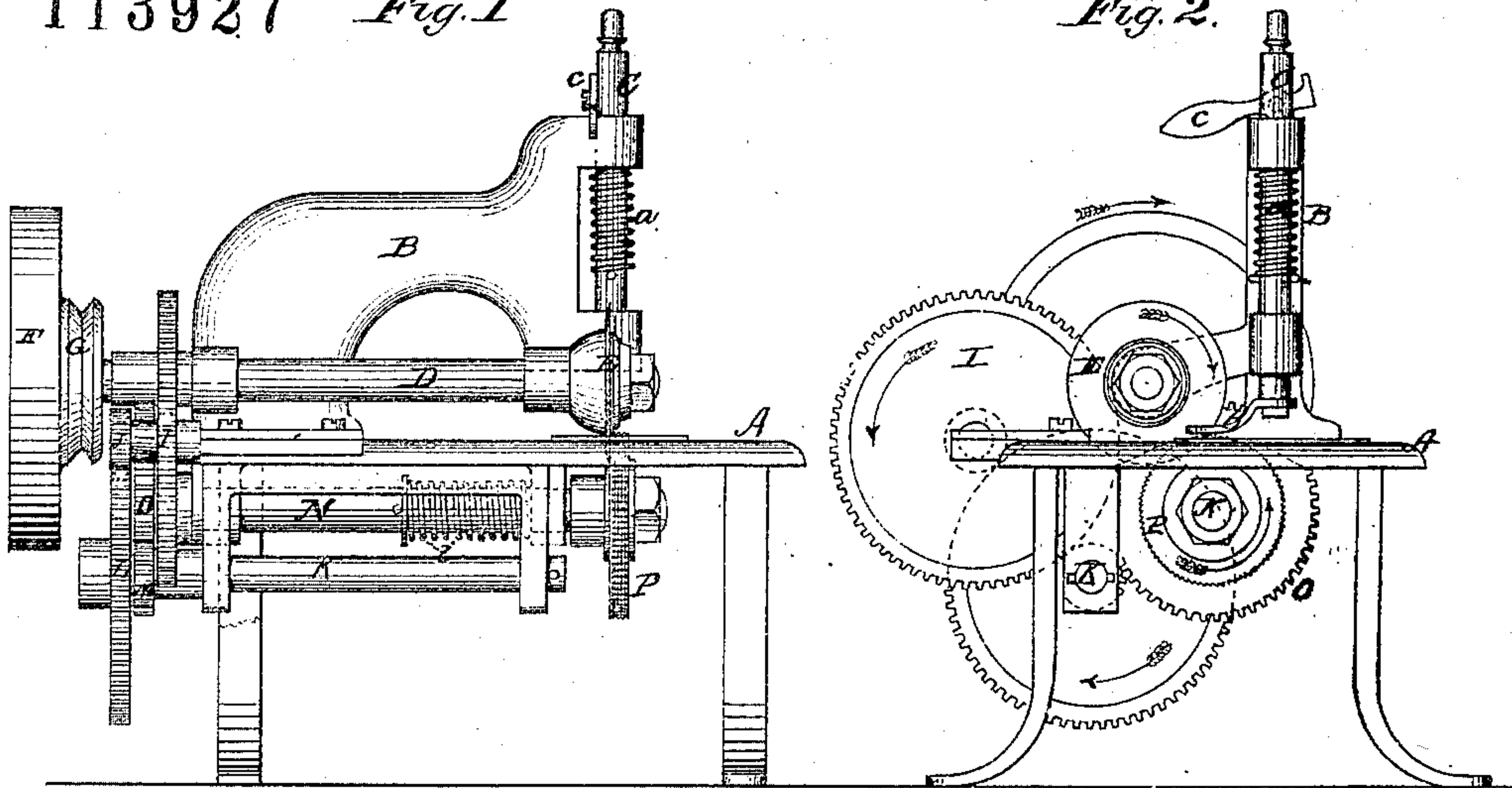


Fig. 3

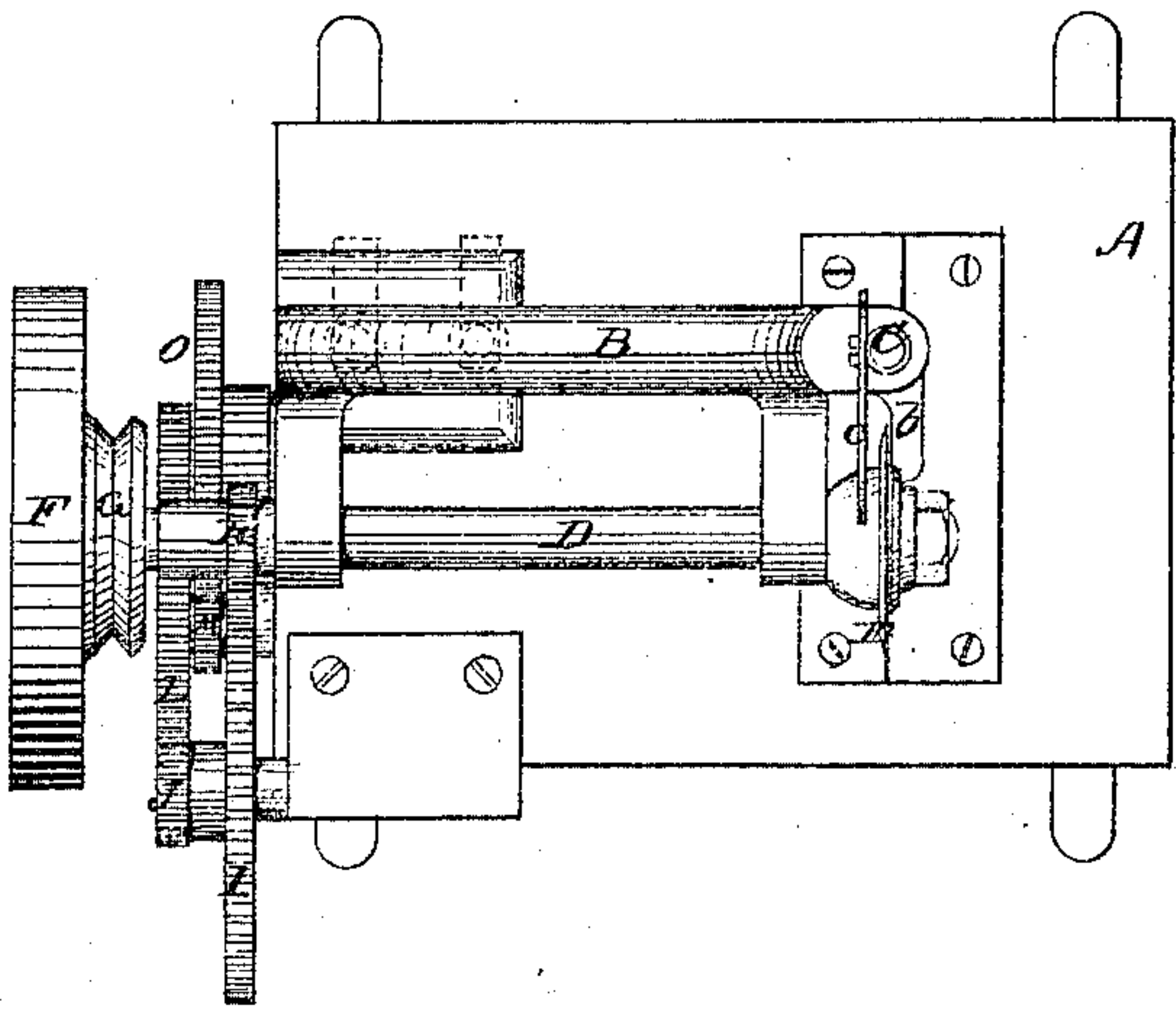


Fig. 4.

Witnesses,

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WILLIAM RAEUCHLE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, GEORGE REX, AND ABRAHAM R. BOCKIUS.

Letters Patent No. 113,927, dated April 18, 1871.

IMPROVEMENT IN MACHINES FOR CUTTING CLOTH, &c.

The Schedule referred to in these Letters Patent and making part of the same;

To all whom it may concern:

Be it known that I, WILLIAM RAEUCHLE, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Machines for Cutting Cloth, Paper, Leather, &c., of which the following is a specification, reference being had to the accompanying drawing.

My invention consists of a machine for cutting or slitting cloth, leather, and similar materials; and

The novelty of the machine consists more especially in a rotary cutter, arranged to revolve at a greater speed than the feeding-wheel or device, whereby it is made to operate with a "draw-cut," and thus perform the cutting in a superior manner.

Figure 1 is a front side elevation of a machine;

Figure 2 is an end elevation of the same;

Figure 3 is a top plan view of the same; and

Figure 4 is a view showing the feed-wheel and the rotary cutter.

In the drawing—

A represents the bed-plate of my machine, which has secured to its upper side near one end a horizontal overreaching arm, B, which extends across above the bed, as shown in figs. 1 and 3.

In the front end of arm B is mounted a vertical sliding rod, C, having a spring, *a*, so applied as to press it downward, and having a presser-foot, *b*, secured to its lower end for the purpose of holding the fabric down upon the feeding devices, to be herein-after described.

To the upper end of the rod C is pivoted a cam-lever, *c*, by which the rod may be raised and supported when the fabric is to be inserted or withdrawn.

On the side of arm B two lugs, *d*, are formed, and a horizontal shaft, D, mounted therein, and provided at its inner end with a thin circular knife or cutter, E, the lower edge of which runs in or through a shallow groove or slit in the bed-plate, just to one side of the presser-foot.

To the outer end of shaft D is secured a fly-wheel, F, driving-pulley G, and a pinion, H, the latter of which gears into a large wheel, I, mounted at one end of the bed A, as shown.

To the side of wheel I is secured a small pinion, J, and below the bed A is mounted a horizontal shaft, K, having secured on its outer end a large wheel, L, and a small pinion, M, the former of which gears into the pinion J affixed to wheel I, as before stated.

Below the bed A, in lugs cast thereon, and a little forward of the vertical plane of shaft D, is mounted a horizontal shaft, N, provided on its outer end with a wheel, O, which gears into the pinion M.

To the inner end of the shaft N is secured a wheel, P, the upper side of which runs in a groove or recess

in the under side of the bed-plate A, close by the side of the cutter E, the lower edge of the cutter and the upper edge of the wheel fitting slightly past each other, as shown in figs. 2 and 4.

A narrow belt or portion of the face of the wheel P, next to the rotary cutter, is made smooth and plain, while the remaining portion of its face is formed with teeth *g*, as shown in figs. 1, 2, and 4, to engage in the fabric and feed the same to the cutter E.

It is obvious that if preferred the feed-wheel may also be provided with a cutting-lip, which would act in connection with the upper cutting-wheel like a shear-blade; and also that when thus made, the upper disk may be dispensed with, the presser-foot serving to hold the material down upon the feed-wheel, the blade of the latter, in that case, alone performing the cutting. I prefer, however, to use the upper cutting-wheel, because it, being made to revolve so much more rapidly than the feed-wheel, will have more of a drawing or shoving action in cutting.

When the parts are thus arranged, and the driving-pulley G set in motion, the rotary cutter E will be set in motion in the direction indicated by the arrow, while the wheel P will be turned at a much slower speed in the opposite direction, the wheel and the cutter thus revolving toward each other.

If, now, a sheet of any soft or pliable material is introduced under the presser-foot, the teeth of wheel P will engage with it and feed it against the lower edge of the rotary cutter, between said cutter and the plain portion of wheel P, and the cutter revolving closely past the wheel will operate with a shearing action on the fabric, and slit or cut through the same as it is fed forward.

The shaft N is so mounted as to have a slight longitudinal play, and has a spring, *i*, so applied to it as to keep it drawn back, and thereby the wheel P in close contact with the side of the cutter E, so that it will cut smooth and clean.

It is obvious that the spring may be applied to the shaft D, and arranged to keep the cutting-disk and feed-wheel in close contact, the result being the same.

The edge of the rotary cutter is beveled off on the side furthest from the wheel P, so that as it wears away against said wheel the cutting-edge is sharpened, and thus the cutter made, in a measure, self-sharpening.

The machine thus constructed and arranged will slit or cut paper, cloth, leather, and like materials with very great rapidity, and will be found of great use in cutting cloth into carpet-strips, leather into shoe-strings or strings for horse-nets, and for similar purposes.

If desired a number of pairs of cutters and wheels

may be used in the same machine, so as to cut a number of strips at once; and when so used the cutters and wheels may be made adjustable laterally, so as to vary the width of the strips produced.

In manufacturing my machines I propose to make them of such size and form that they may be used on an ordinary sewing-machine stand in place of the sewing-machine, so as to be driven by the treadle of the latter, or by power if desired.

I am aware that rotary cutters have heretofore been used, singly and in pairs, for cutting paper and cloth, but in all such cases the cutters or the cutter and feed-wheels have been arranged to revolve at a uni-

form velocity, and I do not claim such; but having thus fully described my invention,

What I claim is—

A machine for cutting cloth and similar material, having the rotary cutter E and the feeding-wheel P constructed and arranged substantially as described, whereby the cutter is caused to revolve at a greater velocity than the cloth is fed along, thus imparting to it a draw-cut, as set forth.

WILLIAM RAEUCHLE.

Witnesses:

CHARLES SCHATZ,
HENRY OPPER.