

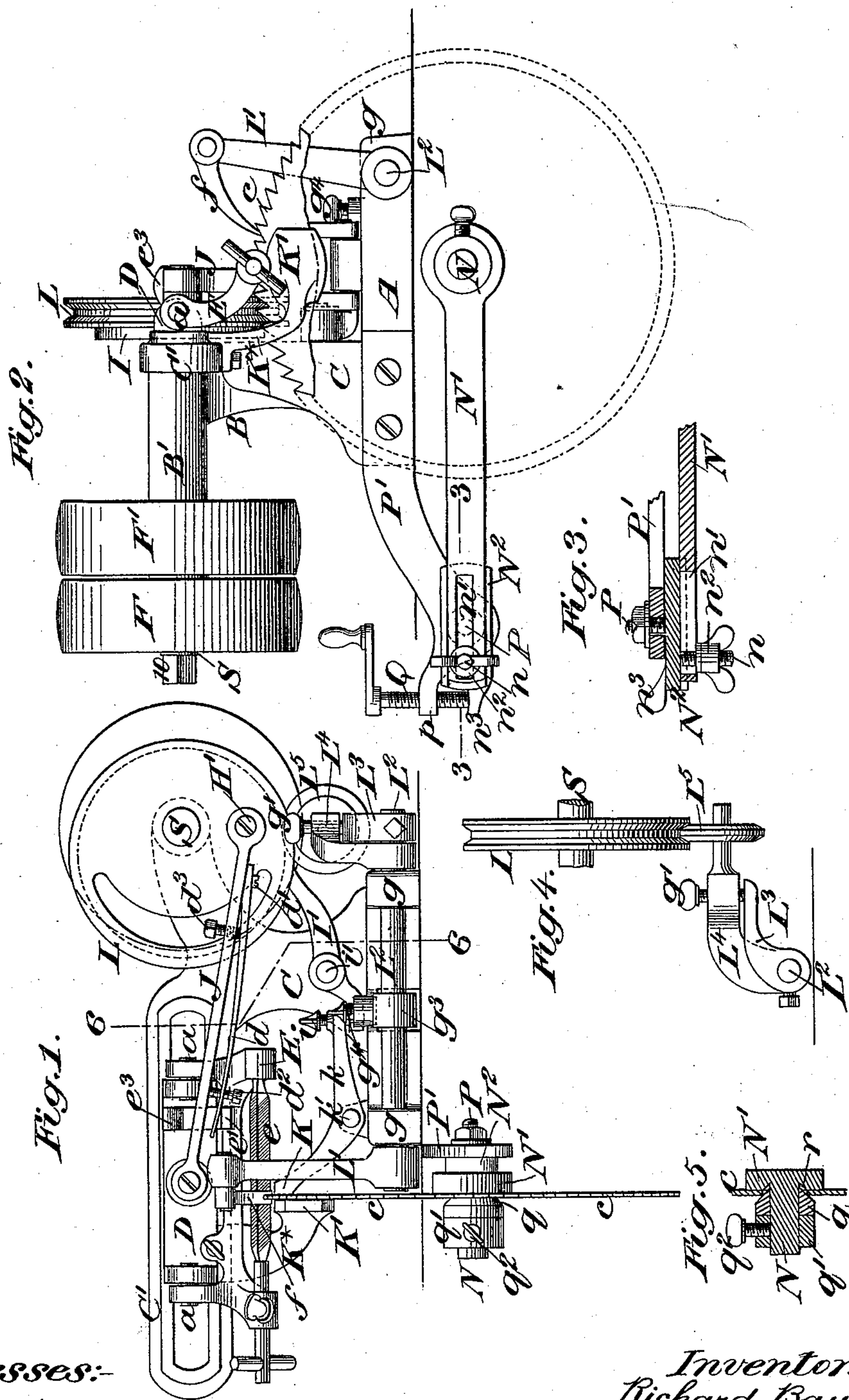
(No Model.)

2 Sheets—Sheet 1.

R. BAUER.
SAW FILING MACHINE.

No. 543,204.

Patented July 23, 1895.



Witnesses:-
George Barry.
A. E. Seward.

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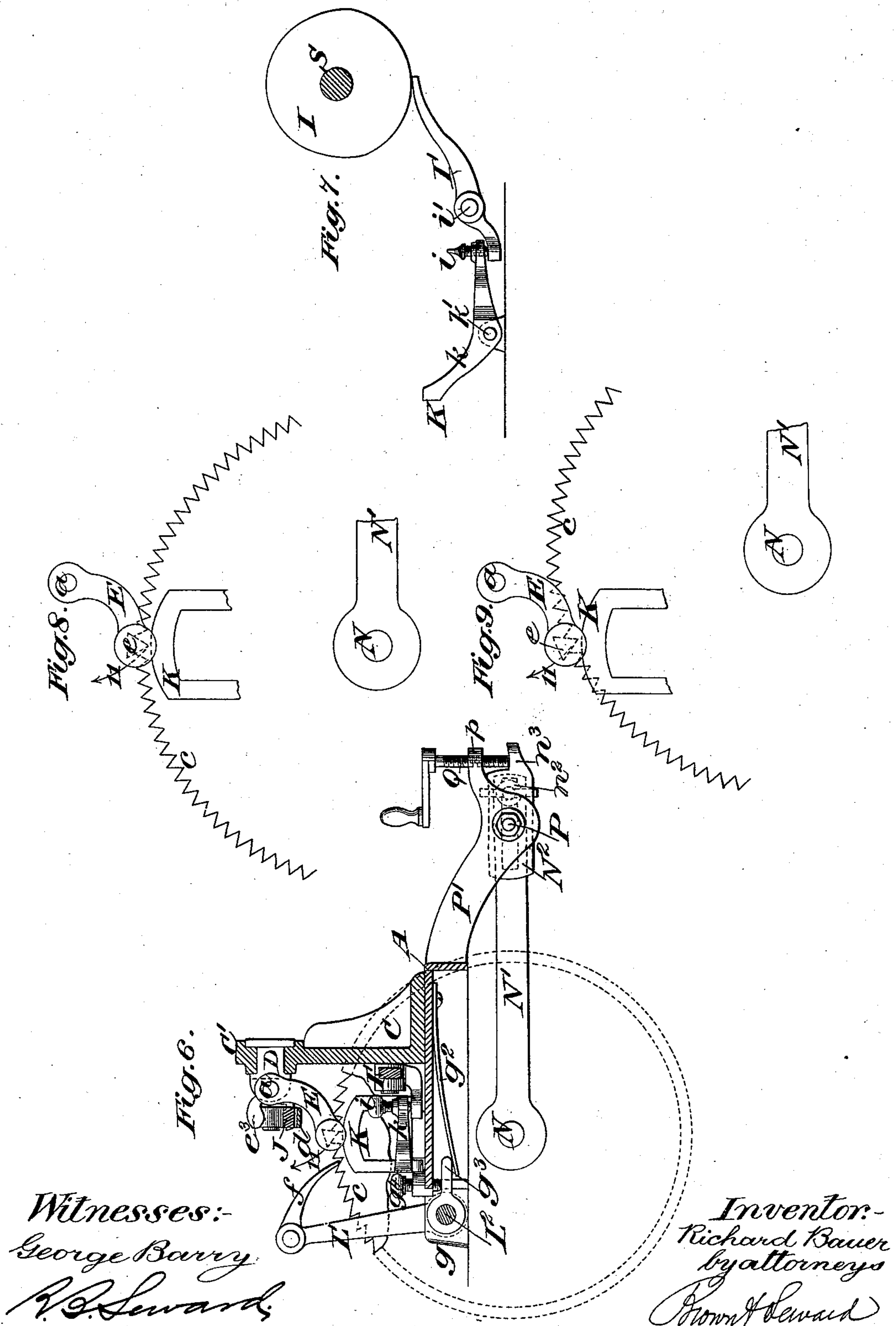
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UNITED STATES PATENT OFFICE.

RICHARD BAUER, OF NEW YORK, N. Y., ASSIGNOR TO PAUL PRYIBIL, OF
SAME PLACE.

SAW-FILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 543,204, dated July 23, 1895.

Application filed June 28, 1894. Serial No. 515,945. (No model.)

To all whom it may concern:

Be it known that I, RICHARD BAUER, of the city and county of New York, in the State of New York, have invented a new and useful
5 Improvement in Saw-Filing Machines, of which the following is a specification.

The improvement which is the subject of this invention relates especially to machines for the filing of circular saws.

10 Figures 1 and 2 represent elevations at right angles to each other of a circular-saw-filing machine embodying my invention. Fig. 3 represents a horizontal section taken in the line 3 3 of Fig. 2. Fig. 4 is a side view of part
15 of the mechanism for turning the saw. Fig. 5 represents a vertical section of the central support for the saw. Fig. 6 represents a vertical section taken transversely to Fig. 1, in the line 6 6 of that figure, viewed in the op-
20 posite direction to Fig. 2. Fig. 7 is a detail view, taken parallel with Fig. 1, of the movable member of the saw-clamp and the means of operating it. Figs. 8 and 9 are diagrams which will be hereinafter explained.

25 Similar letters of reference designate corresponding parts in all the figures.

A is a base, on which are erected standards B and C. The standard B comprises a journal-box B', in which rotates a shaft S, from
30 which motion is imparted to all parts of the machine. The standard C comprises a horizontal guide C', which is arranged at right angles to the shaft S and in which works a reciprocating carriage D, in which the file-
35 holder E is pivoted in such manner by pivots *a a* as to be capable of swinging in a direction transverse to the reciprocating movement of said carriage for the purpose of bringing down the file *e* to the proper level for filing
40 the saw *c* and for raising the file to a suitable height to allow the teeth of the saw to pass under it to be presented to it one at a time, successively, by the rotation of the saw upon a supporting-pivot N, which, with its support-
45 ing and adjusting devices, will be hereinafter more fully described.

The shaft S is represented as furnished near one end with fast and loose driving-pulleys F F' for a driving-belt, and the said end is rep-
50 resented at 10 (see Fig. 2) squared for the reception of a hand-crank to operate the ma-

chine by hand if desired. At the other end the shaft carries a disk H, in which is a crank-pin H', serving through a connecting-rod J to give a reciprocating movement to the carriage
55 D to produce the filing movement. The said disk has upon it a cam I for the purpose of operating the movable member K of the clamp K K', which clamps the saw near the edge during the operation of the file, as will be
60 hereinafter described, and there is also upon said disk a grooved cam L for turning the saw upon the pivot N, on which it is centrally supported, and thereby feeding its teeth one at a time to the file, as will be hereinafter ex-
65 plained.

The fixed member K' of the clamp is formed on a bracket K*, which is rigidly affixed to and dependent from the file-carriage guide C'. The movable member K of the said
70 clamp, which is shown in Figs. 1 and 6, and also shown with its operating mechanism in Fig. 7, is formed on or carried by one end of a lever *k*, which works on a fixed fulcrum *k'*, supported on the base A, and the other end
75 of which overlies one end of a lever I', which works on a fixed fulcrum *i'*, secured in the standard C. The other end of the lever I' underlies the cam I on the shaft S. This cam
80 during about or nearly half a revolution of the shaft S depresses its end of the lever I' and so raises the other end of the said lever, and with it the contiguous end of the lever *k*, in such manner as to produce the operation
85 of the movable member K of the clamp to clamp the saw during the filing operation. During the rest of the revolution of the cam I the clamp member K is left loose to permit the turning of the saw. In order to adjust
90 the operation of the clamp for saws of different thicknesses, the contact between the levers *k* and I' is made by means of an adjusting-screw *i*, which screws through that *k* and bears upon that I'.

The above-described construction and ar-
95 rangement of the saw-clamp leaves a clear opening below the clamp for the passage of the saw.

For the purpose of producing the necessary downward pressure on the file to make it op-
100 erate effectively a spring *d* is attached to the under side of the connecting-rod J by two

screws d' d^2 , said spring bearing upon a projection e' (see Fig. 1) on the file-holder E. The pressure of this spring is made adjustable by a set-screw d^3 , screwing through the rod J.

For the purpose of raising the file-holder to lift the file clear of the teeth of the saw to allow the saw to turn to present successive teeth there is a projection e^3 on the holder, which so overlies the connecting-rod J that the said rod during its backward movement, produced in the upper half of the revolution of the crank-pin H', will be brought in contact with the said projection and will lift the holder.

The turning of the saw to present its teeth successively to the file is produced by a pawl or dog f , (see Figs. 1, 2, and 6,) which is pivoted to one end of the arm L' on one end of a rock-shaft L², which works in bearings g g , provided on the base A, the other end of the said rock-shaft being furnished with an arm L³, which is fast upon it, and an arm L⁴, which is loose upon it, the loose arm L⁴ carrying a roller L⁵, the edge of which is received in a groove in the periphery of the cam L. The said rock-shaft, with its fast and loose arms, and the cam L are shown in Fig. 4, which is a view looking toward the right-hand end of Fig. 2. The loose arm L⁴ has screwed through it an adjusting-screw g' , through which the cam, acting upon the loose arm, acts upon the arm L³ and upon the rock-shaft L² and pawl f to turn the saw.

The return movement of the pawl is produced by means of a spring g^2 (see Fig. 6) acting upon a toe g^3 on the rock shaft L². The distance of this return movement is regulated by a stop-screw g^4 , which is screwed through the base A above the toe g^3 . The distance of the forward movement of the pawl is regulated by a screw g' on the loose arm L⁴ of the rock-shaft.

The saw-supporting pivot N is made adjustable in two ways, viz: first, upward and downward toward and from the file-carriage D and clamp to provide for placing saws of different diameters with their teeth at the proper height to be operated upon by the file, and, second, in a direction transverse to the file-carriage D and the clamp to provide in using the machine to file saws with teeth of different shapes for the clearance of the file from the teeth when the file is lifted after the filing of one tooth and preparatory to the filing of the next one, and for the purposes of these two adjustments the said pivot N is secured in a lever N' N² of variable length, the fulcrum of which is a pin P supported in a bearing in a bracket P' carried by the base A. This lever N' N² is composed, as shown in Figs. 2, 3, and 6, of two parts, viz: a stock N² and a bar N' fitted to slide lengthwise in the said stock. The stock N² is permanently affixed to the fulcrum-pin P, and it also has affixed to it a stud n , as shown in Figs. 2 and 3, which passes through a slot n' in the bar N', the said stud n being

screw-threaded at its outer end, which projects from the said slot, and being fitted with a clamping-nut n^2 , by which the bar N' is permanently secured in its longitudinal adjustment within the stock N². The said longitudinal adjustment provides for the lateral adjustment of the saw relatively to the clamp and the file-carriage, or, in other words, its adjustment across the path of the file-carriage. In order to provide for the upward and downward adjustment for saws of different diameters there is an adjusting-screw Q, which screws through a lug p on the bracket P' and bears on a projection n^3 on the stock N². By screwing down this screw Q upon the projection n^3 , which constitutes one end of the lever N' N², the said lever is turned upon its fulcrum and the other end of the said lever, carrying the saw-supporting pivot N, is raised, and with it the saw upon it, and by turning back the said screw the heavier end of the lever, having the pivot N and the saw upon it, is caused to descend by the greater weight. The screw Q thus serves to adjust the saw to the proper height, according to its diameter. The lateral adjustment is provided for by unscrewing the nut n^2 and sliding the bar N' within the stock N² and then screwing up the nut.

To explain the object and effect of the lateral adjustment of the saw relatively to the file-holder E and saw-clamp, I will first point out with reference to Fig. 6 that every part of the file in being lifted by the movement of the carriage E on its pivots a a describes an arc of a circle. The arc described by the lower edge of the file is indicated by an arrow 11 in that figure, and it will be understood that in the lifting of the file the lower edge of the file clears such teeth as are represented in the saw in that figure. In said figure the supporting-pivot N and the center of the saw are vertically below the file.

Referring now to the diagram Fig. 8, in which a saw having teeth of a shape different from those shown in Fig. 6 is arranged with its center directly below the file, as in Fig. 6, it will be seen that the file could not make the movement indicated by the arrow 11, because its lower edge and its left-hand side would be obstructed by the tooth; but on referring to Fig. 9, in which the supporting-pivot N and the center of the saw having teeth just like those shown in Fig. 8 are brought, by the adjustment of the lever N' N², to a position considerably to the right of that shown in Figs. 6 and 8, the movement of the file indicated by the arrow 11 carries it clear of the tooth.

To provide for the turning of the saw and the supporting-pivot N with sufficient freedom and yet keeping it accurately centered thereon, the said pivot is fitted with a concentric clamp q , of conical form, as shown in Fig. 5, the said clamp fitting the eye of any saw. This clamp is secured upon the pivot N by a collar q' and a binding-screw q^2 , which

sets the collar upon the pivot. The face of the bar N' is countersunk around the pivot, as shown at r in Fig. 5, to make room for the projection of the clamp q through the eye of the saw.

I do not claim as part of the present invention the means of producing the swinging movement of the file-holder, as this forms part of the subject-matter of my application for patent, Serial No. 515,944, filed June 28, 1894.

What I claim as my invention is—

1. The combination with a saw clamp and a file carriage, of a lever which is adjustable lengthwise relatively to its fulcrum and transversely to the path of the file carriage and a

saw supporting pivot carried by said lever, substantially as herein set forth.

2. In a machine for filing circular saws, the combination with a saw clamp and a file carriage, of a saw carrying lever consisting of a stock and a bar adjustable lengthwise therein, the said stock having a fixed relation to the fulcrum of the lever and the said bar carrying a pivot for the saw and being adjustable lengthwise within said stock, substantially as and for the purpose herein set forth.

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Witnesses:

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GEORGE BARRY.