(No Model.)

J. RIDDELL.

FILING MACHINE.

No. 532,819. Patented Jan. 22, 1895.

FIG. 1.

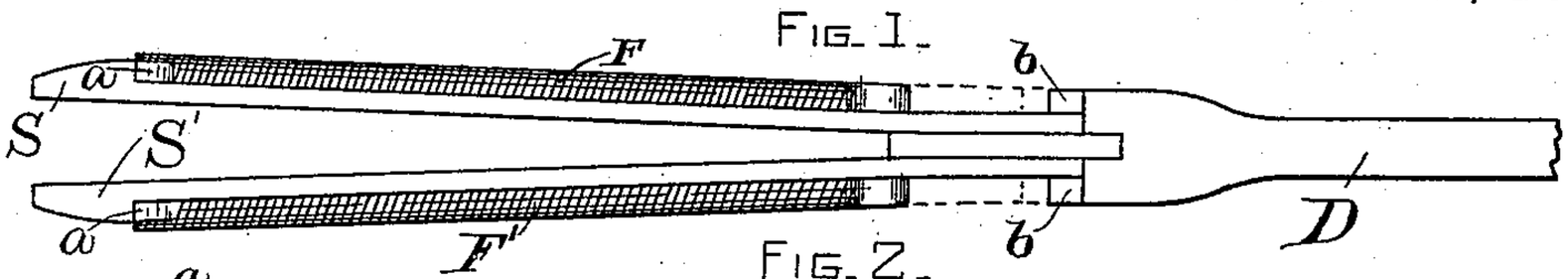


FIG. 2.

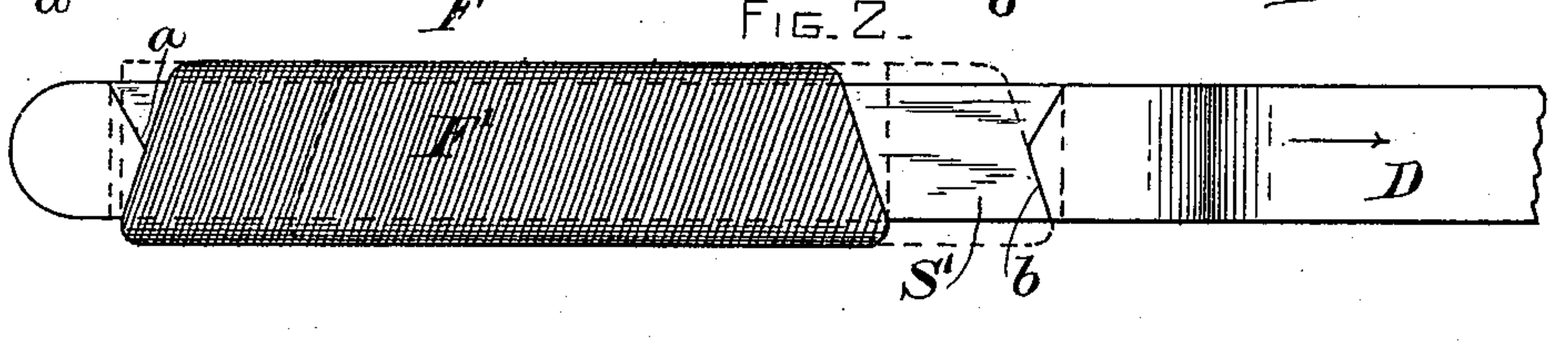


FIG. 3.

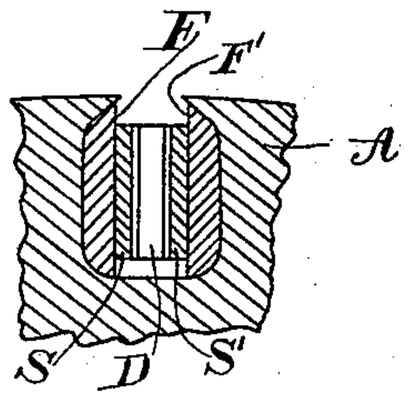
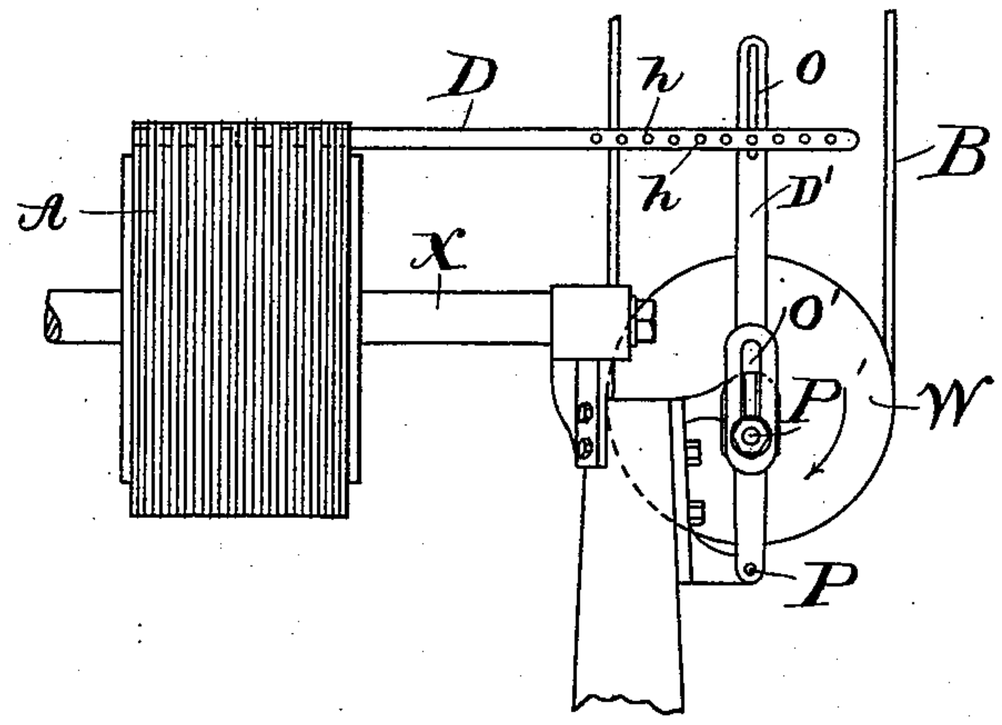


FIG. 4.



WITNESSES.

Alec F. Macdonald.

A. E. Lane

INVENTOR.

John Riddell

by Bartley & Blodgett

Attys.

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

UNITED STATES PATENT OFFICE.

JOHN RIDDELL, OF SAUGUS, MASSACHUSETTS, ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

FILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 532,819, dated January 22, 1895.

Application filed May 23, 1892. Serial No. 434,108. (No model.)

To all whom it may concern:

Be it known that I, JOHN RIDDELL, a citizen of the United States, residing at Saugus, county of Essex, State of Massachusetts, have invented a certain new and useful Improvement in Automatic Filing-Machines, of which the following is a specification.

The invention relates to automatic filing machines, and is especially designed for filing out the slots in armatures in which the armature conductors are wound.

The armatures are built up of iron plates, or laminæ, and are punched from sheet iron, and, for the larger sizes of machines, it becomes necessary, to make them of several pieces or of segments which are usually of corresponding form. A die for punching such a sheet, or segment of a sheet, at one operation, with the slots for the armature conductors and bolt holes complete, is difficult to make and if broken is very costly to replace. The armature slots and bolt holes are therefore each punched by a separate die and in a separate operation. When these armature sheets or segments are assembled, in building up the armature the slots only approximately coincide as to position, and, as it is necessary to have smooth sides in the slots to avoid irregularities or sharp projections, which would chafe the insulation of the armature conductors or pierce the same and cause short circuits, the slots require to be carefully filed out. This operation has hitherto been done by hand at considerable expense. My invention performs this work in a satisfactory manner at a speed much greater than can be attained by hand work and one man is able to look after and keep a number of such machines continually working.

In the drawings, Figure 1 is a top plan view of the files. Fig. 2 is a side elevation. Fig. 3 is a cross section, and Fig. 4 is a view, of the machine.

The files F, F′, are retained between the outer surfaces of spring carriers S, S′, and the surface to be filed, as is clearly shown in the figures, and are provided with a certain amount of lost motion endwise between the engaging portion or shoulders *a*, *b*, of the spring carriers S, S′.

The files may conform to the shape of the slot to be cut and their ends may be made angling or oblique so as to leave the file shorter at the top than at the bottom, and the engaging surfaces *a*, *b* also correspond to the angle at the end of the file. The purpose of this arrangement is to force the file toward the bottom of the slot in its cutting motion and to release it when moving in the reverse direction. In case, however, the filing is required to be done quite uniformly over the entire surface, the ends of the files and the engaging surfaces *a*, *b*, may be square, as shown in dotted lines.

The armature A, is supported upon the shaft X, about which it can be rotated. The files are given a reciprocating motion by an arm D, operated by a swinging arm D′, which latter is pivoted at P, and is slotted at O and O′. A pin from the arm D, engages with the slot O, and a pin P′, secured to a rotating pulley W, operates in the slot O′. The rotation of the pulley W, by a belt B or by other means, gives a reciprocating motion to the swinging arm D′, which is communicated to the arm D, and the files. The speed of working of the apparatus can be increased by this means, as the return stroke is relatively faster than the cutting stroke, as is common and well known.

The purpose of the slot O, is to adapt the apparatus to different diameters of armatures, and the holes *h* or a slot in the arm D, permit adjustments of the files in the direction of the slot. Instead of filing one slot at a time a number of files may be worked simultaneously in the same armature, employing, if desired, as many files as there are slots, but the gain in the rate of filing is partially offset by the increased time required to adjust the files in position.

The files F, and F′, are held in position merely by spring pressure between the arms S, S′, and the armature A. In the cutting stroke, which is toward the right in the figure, the files F, F′, are moved toward the shoulders *a* and are forced against the armature with a considerable spring pressure and quite evenly throughout their length. In the return stroke, the files move toward the shoulders *b*, with little or no pressure against the armature A.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a filing machine, the combination with a file holder, of a file movable lengthwise thereon, and means for limiting the endwise movement of the file thereon.

2. In a filing machine, the combination with a file holder, of a file movable endwise thereon, and means for regulating these movements.

3. In a filing machine, the combination with a file holder having stops and guides, of a file movable endwise thereon and regulated in its movement by the stops and guides.

4. In a filing machine, a file holder formed with vibratable arms, in combination with files movable endwise on said arms, and means for limiting the endwise movement of the files thereon.

5. In a filing machine, a file holder formed with vibratable arms, in combination with files movable endwise on said arms, and means for regulating these movements.

6. In a filing machine, a file holder provided with stops, in combination with a file movable endwise between the stops and adapted thereby to have lost motion.

7. In a filing machine, the combination with a spring arm having shoulders, of a file shorter than the space between said shoulders, so as to have an endwise play, substantially as set forth.

8. The combination with a file holder having at each end an oblique shoulder *a*, *b*, of a file held loosely between said shoulders, and having oblique ends, substantially as described.

9. In a machine for filing slots, a file carrier consisting of two spring arms adapted to press against the sides of the slot, and a file loosely engaging with the outer side of each arm, substantially as described.

10. In a filing machine, a horizontal reciprocating file carrying arm, provided with vibratable file holder arms, and files mounted thereon and movable endwise on said arms, in combination with mechanism for reciprocating said horizontal file carrying arm.

In witness whereof I have hereto set my hand this 20th day of May, 1892.

JOHN RIDDELL.

Witnesses:

JOHN W. GIBBONEY,

BENJAMIN B. HULL.