

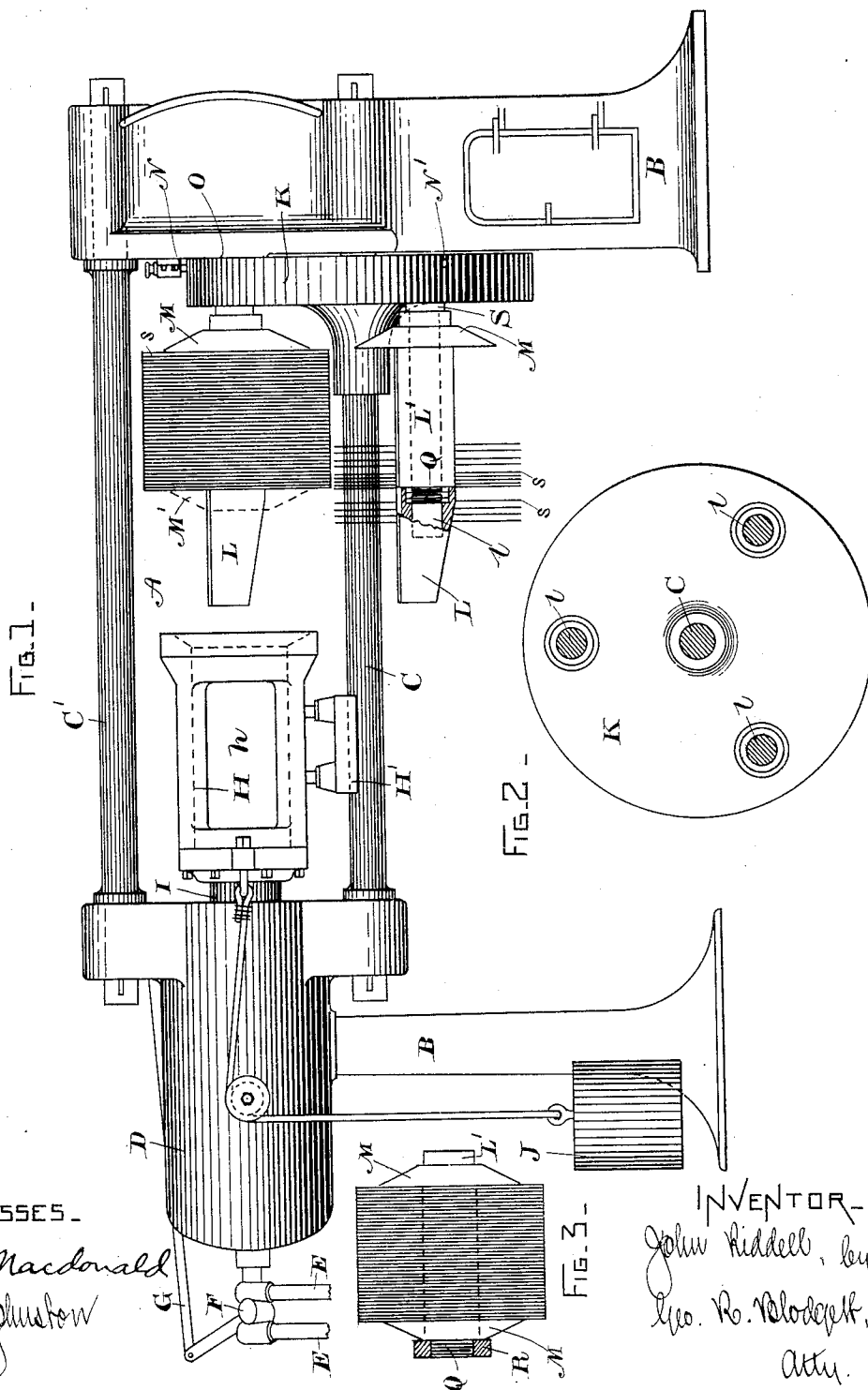
(No Model.)

J. RIDDELL.

MACHINE FOR ASSEMBLING LAMINÆ OF ARMATURES.

No. 532,820.

Patented Jan. 22, 1895.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR ASSEMBLING LAMINÆ OF ARMATURES.

SPECIFICATION forming part of Letters Patent No. 532,820, dated January 22, 1895.

Application filed October 19, 1894. Serial No. 526,374. (No model.)

To all whom it may concern:

Be it known that I, JOHN RIDDELL, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Machines for Assembling Laminæ of Armatures, of which the following is a specification.

My invention relates to an apparatus designed to assemble the laminæ of armatures of dynamo-electric machines, although it may be applied to other purposes; and has for its object to produce such a machine capable of assembling laminæ or punchings much more rapidly than the ordinary presses used for such purposes, and also of compacting them into a more rigid structure than heretofore. To carry out this purpose I provide a suitable base or suitable standards for the machine, connected by rigid bars upon which the strain comes in the direction of their length so that their tensile strength is utilized. I then place a rotating platen upon this machine, and upon this platen I put studs of the size of the armature shaft. The laminæ are then loosely placed upon sleeves carried by these studs, and from the opposite end of the machine a hydraulic ram is advanced which presses them firmly in place. Upon one end of the sleeve I provide a screw-thread, and after the ram has been advanced I screw a nut upon this thread, the ram having an open head which permits insertion of the hand for this purpose. A stop co-operates with the rotating platen, centering the studs opposite the ram, and upon one of the standards I provide a tooled surface against which the platen abuts, furnishing a substantial backing to resist the hydraulic pressure.

The accompanying drawings show an embodiment of my invention.

Figure 1 is a side elevation of my improved machine. Fig. 2 is a front view of the platen, the studs being shown in section. Fig. 3 shows the form of the armature core when removed from the machine.

Referring by letter, A is the machine referred to.

B, B are standards, which may be of any desired pattern.

C, C' are longitudinal bars joining the two standards, the lower one, C, forming a guide way for the reciprocating ram H, which has a carriage H' resting upon the bar, forming also the axle about which turns the revolving platen K. Any suitable means may be employed for securing these bars in place.

Upon the platen K I arrange, as illustrated and described, three spindles one hundred and twenty degrees apart. These are carried upon the studs *l, l, &c.*, the arrangement being best shown in Fig. 2.

Referring to Fig. 1, the spindle L' is shown surrounding the studs *l*, which is shown in dotted lines. A collar S is turned upon the spindle and against this fixed collar another collar M bears. A horn L is also used, for a purpose presently to be pointed out, and is tapered, having one end of less diameter and at the other end a diameter equal to that of the spindle. The platen bears, as already pointed out, against a surface O, upon the standard B, and is provided upon its edge with three holes, N', which co-operate with the spring catch N, seen at the top of the platen in Fig. 1. At the other end of the machine is a hydraulic cylinder D, supplied through pipes E, E, which are respectively the charging and exhaust pipes. A cock F controls the flow to this cylinder, and is manipulated by a rod G. A counter-weight J is employed to return the ram H when the pressure is released. This ram is indicated as carried upon the plunger I, in ways well known in the art, and is provided with a hand-hole *h*.

Fig. 3 shows the disks assembled in place as removed from the machine. A nut R is placed over the threaded end Q of the spindle to secure it in place.

The method of operation is this: The disks are assembled loosely in place upon the spindle, the horn L forming a convenient means of slipping them into place. When the proper number have been put on, the platen K is rotated until the latch or stop N falls into the one of the holes N' opposite the spindle carrying the laminæ. The cock F is then operated to throw on the pressure, and the ram H is slid forward until it presses the laminæ *s*, *s* firmly into place, a collar M' having been

previously slipped over the horn L. The horn L is then removed, and the nut R is passed over the threaded part Q of the spindle. While this is being done another one of the studs has the spindle L' slipped over it and the laminæ are then assembled thereon ready to be brought before the ram when the one in position before it is removed. The ram is then run back by the counter-weight J as pressure is taken off it. The latch N is started, the platen rotated, and the disks which have just been put in place are substituted for those before the ram, while those which have been pressed are removed upon the other side of the machine.

It will be seen that as thus conducted the operation is continuous and that there is no waste of time, while the disks are firmly and uniformly compressed, the machine itself being constructed so as to take the strain of its working parts and prevent its getting out of alignment or becoming loose, so that it remains true even after considerable use.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a machine for assembling laminæ, a suitable frame, rods connecting the parts of such frame together, a platen rotating on one of such rods, studs carried by the platen, and spindles carried by the studs, substantially as described.

2. In a machine of the class described, a suitable frame for the machine, rods connecting the parts of the frame together, a platen rotating upon one of such rods, studs upon the platen, spindles arranged to slide upon the studs, a stop upon a fixed part of the machine, and holes in the platen opposite each stud co-operating with the stop.

3. In a machine of the class described, a suitable frame, rods connecting the parts of the frame, a rotating platen upon one of such rods, studs upon the platen, and spindles co-operating with the studs, each spindle provided with a retaining collar for the laminæ, as herein described.

4. In a machine of the class described, a frame, rods connecting the parts of the frame, a platen rotating upon one of the rods, studs upon the platen, and spindles adapted to slide over the studs, each spindle provided with a

collar upon one end and a threaded portion upon the other end.

5. In a machine of the class described, a suitable frame, rods connecting the parts of the frame, a platen revolving upon one of such rods, studs upon the platen, spindles sliding over the studs, each spindle provided with a collar upon one end and a screw-threaded portion upon the other, a taper horn covering the screw-threaded portion during the assembling of the laminæ, and a nut adapted to engage with the screw-threaded portion when the horn is removed, substantially as described.

6. In a machine of the class described, a frame, rods connecting the parts of the frame, a platen revolving upon one of such rods and carrying suitable parts for the assembling of the laminæ, and a ram arranged to compress the laminæ in position upon the platen, the platen abutting against a part of the frame of the machine at the portion of its travel opposite the ram.

7. In a machine of the class described, a suitable frame, rods holding the parts of the frame together, a platen revolving upon one of such rods and carrying means for assembling the laminæ, and a ram also sliding upon one of the rods and arranged to compress the laminæ into position, the ram having an opening through which a nut may be inserted to hold the laminæ in position when compressed.

8. In a machine of the class described, a suitable frame, rods holding the parts of the frame together, a platen revolving upon one of such rods, studs carried by the platen, spindles revolving upon the studs, each spindle having a screw-threaded portion at one end, a ram adapted to compress the laminæ when placed in position on the spindle, the ram having an opening in the head, and a nut registering with the screw-threaded end of the spindle and holding the laminæ in position.

In witness whereof I have hereunto set my hand this 12th day of October, 1894.

JOHN RIDDELL.

Witnesses:

A. F. MACDONALD,
B. B. HULL.