E. W. COLLINS.

STACKING PIN.

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1,343,351. Patented June 15, 1920.

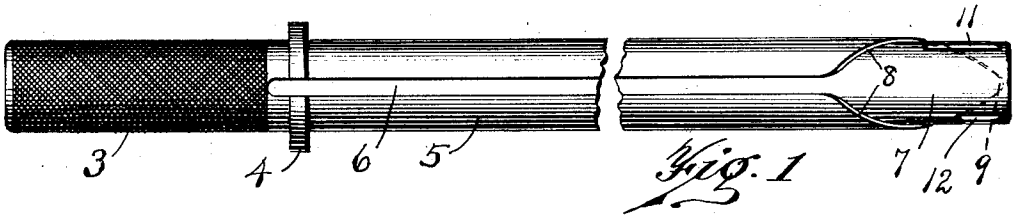


Fig. 1

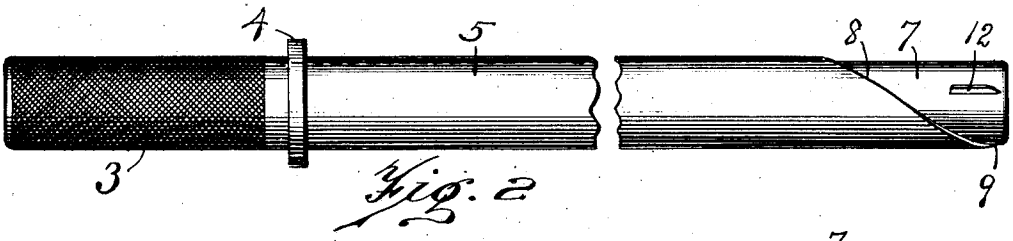


Fig. 2

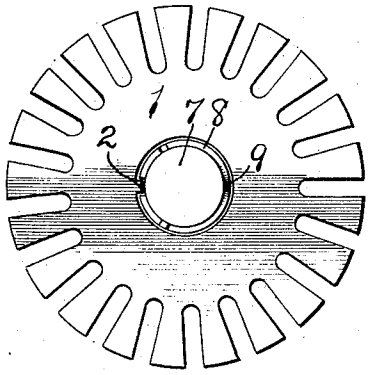


Fig. 3

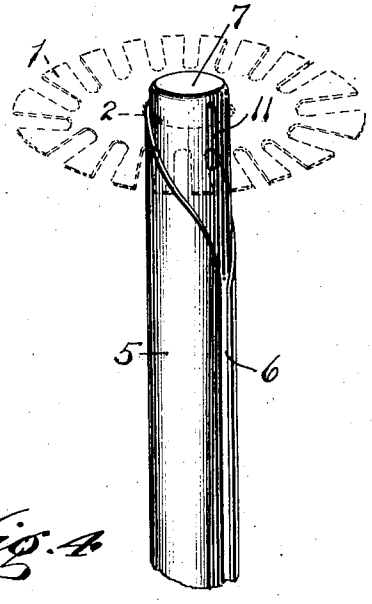


Fig. 4

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STACKING-PIN.

1,343,351. Specification of Letters Patent. **Patented June 15, 1920.**

Application filed December 24, 1919. Serial No. 347,247.

To all whom it may concern:

Be it known that I, EDWARD W. COLLINS, a citizen of the United States, and residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Stacking-pin, of which the following is a specification.

This invention relates to means for arranging sheet metal disks, which are provided with circular holes and alining lugs or feathers, in stacks in such a manner that the feathers shall be in alinement, and its object is to provide a stacking device which may be produced at low cost, which shall be practically effective and which will have substantially unlimited life.

This invention consists in a pin comprising two portions of different diameters, the portion of larger diameter having a longitudinal groove to receive the alining projections of the disks, the shoulder between the two portions curving both ways around the pin from a point at one end of the pin substantially opposite the groove, to the groove at a distance from said end of the pin.

It further consists in forming two longitudinal ribs on the smaller portion near one end of the pin, the height of the ribs being substantially the height of the shoulder between the two portions of the pin.

It also consists in spacing these ribs a distance from the reduced end of the pin at least equaling the thickness of one of the disks to be stacked.

It also consists in the details of construction illustrated in the accompanying drawing and particularly pointed out in the claims.

In the drawing, Figures 1 and 2 are elevations of this stacking pin at right angles to each other. Fig. 3 is an end view of the stacking pin with a lamination of an armature of an electric machine in position thereon. Fig. 4 is a perspective of this stacking pin.

Similar reference characters refer to like parts throughout the several views.

While the stacking pin is adapted to aline sheet metal disks of many different types, it is peculiarly valuable for stacking the disks or laminations of the armatures of electric motors and generators. It has been customary to force these disks 1 after being cut to exact form, one at a time, onto the armature shafts, or onto stacking pins, care being necessary to bring the small projection or feather 2 into alinement with the keyway or longitudinal groove of the shaft or stacking pin. To accelerate this result the present stacking pin has been designed.

This pin may be of any desired size and length, depending on the disks to be stacked. For large disks it may be mounted in an upright position, but for disks of armatures which are not too heavy to hold in one hand, the stacking pin is preferably formed with a knurled end 3 so it may be firmly held. A collar 4 limits the movements of the disks. The main portion 5 of the pin is of uniform diameter and provided with a groove 6 to receive the feathers 2 of the disks 1.

The opposite end 7 of the pin is of smaller diameter than the part 5, a shoulder 8 forming a square corner between the two parts and beginning at a point 9 at the end of the pin opposite the groove 6 and extending both ways around the pin and inwardly to form helical guides which end at the groove 6 a distance from the end of the shaft.

When the operator takes up a number of disks in one hand and places them over the end 7 of the upright pin, these disks will slide down on the pin, the feathers 2 being guided by the helical shoulder 8 to the groove 6. A slight shaking movement of the pin accelerates the alining of the disks.

It may occur that the feather 2 is placed directly over the point 9 and then slides down over this extended portion of the larger part of the pin until the disk jams. To prevent this, the longitudinal ribs 11 and 12 are formed on the part 7 and preferably spaced equally from the point 9 and each other and these ribs will center the disks and support them until the feathers 2 have moved around from contact with the point 9 of the shoulder. This is accomplished by slightly shaking the pin. These ribs should end a short distance from the end of the pin to leave space for one or two disks and end a sufficient distance from the shoulder 8 to permit the feathers 2 to pass. It will be observed that a single rib will perform the same function but not so effectively.

After the correct number of disks have been stacked, the pin and the disks thereon are inverted into a proper holder, after which the pin is withdrawn and the armature shaft is driven into place.

I claim:—

1. A stacking pin for sheet metal disks having two portions of different diameters, the larger portion having a longitudinal alining groove, the shoulder between the two parts of the pin curving both ways around the pin and outwardly from said groove.

2. A stacking pin for sheet metal having a reduced end, and a longitudinal groove in its unreduced portion, the pin being formed with a radial shoulder at the reduced end which shoulder curves both ways around the pin and inwardly from a point at the end of the pin spaced angularly around the pin from the groove to the end of said groove.

3. A stacking pin for sheet metal having a reduced end, and a longitudinal groove in its unreduced portion, the pin being formed with a radial shoulder at the reduced end which shoulder curves both ways around the pin and inwardly from a point at the end of the pin spaced angularly around the pin from the groove to the end of said groove, the reduced end of the pin beyond the shoulder being cylindrical and having a longitudinal rib whose height is that of the shoulder.

4. A stacking pin for sheet metal having a reduced end, and a longitudinal groove in its unreduced portion, the pin being formed with a radial shoulder at the reduced end which shoulder curves both ways around the pin and inwardly from a point at the end of the pin spaced angularly around the pin from the groove to the end of said groove, the reduced end of the pin beyond the shoulder being cylindrical and having two short longitudinal ribs spaced evenly from a point opposite said groove and each other.

EDWARD WILLIE COLLINS.