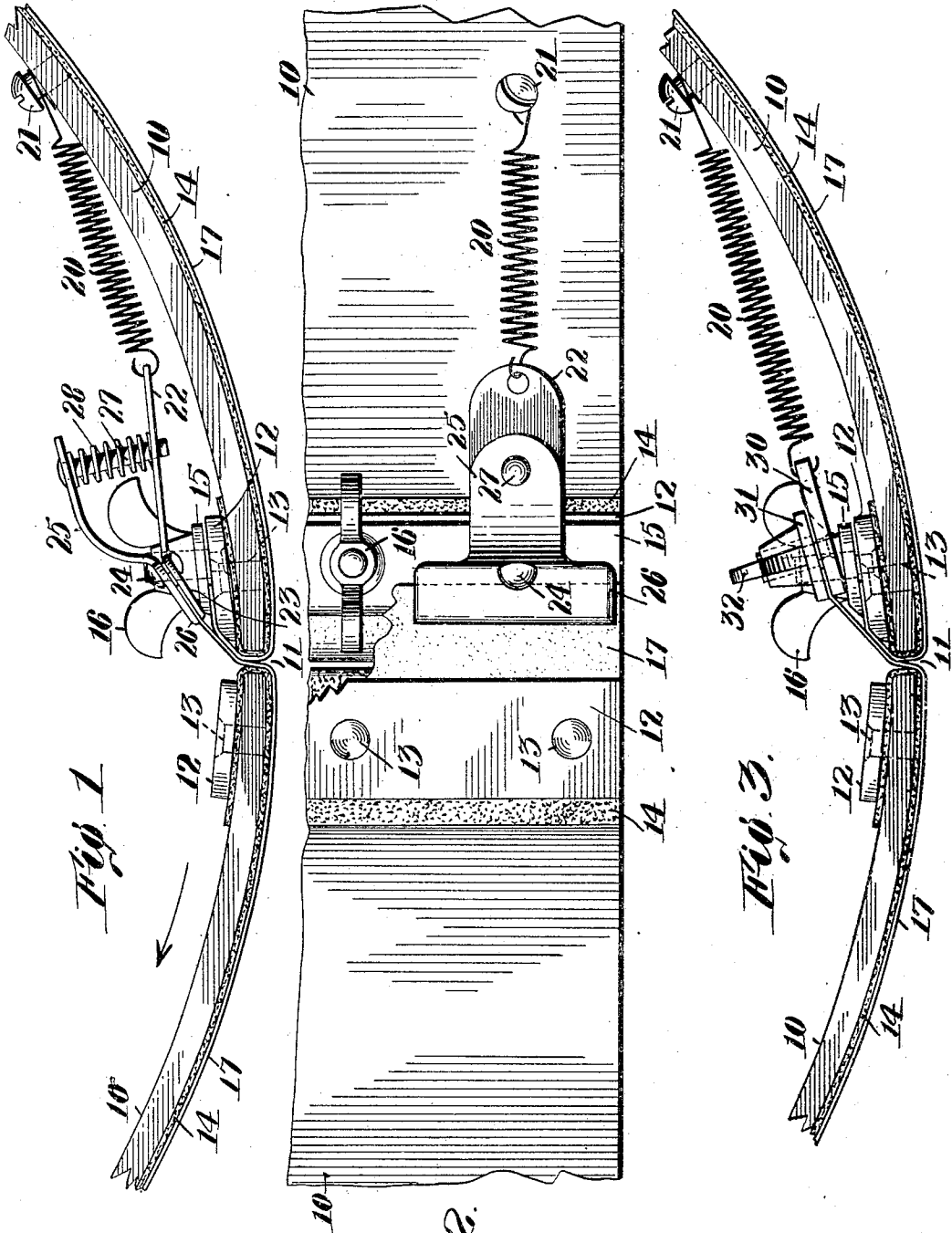


T. NICHOLS.
SAND WHEEL.

APPLICATION FILED MAY 4, 1908.

946,920.

Patented Jan. 18, 1910.



Witnesses:
C. F. Mason.
E. M. Allen.

Fig. 2.

Inventor:
Thomas Nichols.
By Attorneys.
Southgate & Southgate.

UNITED STATES PATENT OFFICE.

THOMAS NICHOLS, OF GARDNER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO L. G. McKNIGHT, OF GARDNER, MASSACHUSETTS.

SAND-WHEEL.

946,920.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed May 4, 1908. Serial No. 430,694.

To all whom it may concern:

Be it known that I, THOMAS NICHOLS, a citizen of the United States, residing at Gardner, in the county of Worcester and State of Massachusetts, have invented a new and useful Sand-Wheel, of which the following is a specification.

This invention relates to a sand wheel or other device for polishing and abrading.

The principal objects of the invention are to provide a simple and convenient construction in which the sand-paper, emery-cloth, or other sheet material used for forming the desired operations shall be held in such a way that there will be only a very narrow slot in the wheel through which the sheet passes and the rotation of the sand wheel or the like, or other motion thereof for the purpose of sanding or polishing surfaces can have no effect to pucker or wrinkle the material, any tendency in that direction being prevented by the taking up of the polishing material, by means of a spring or the like, whereby the life of the sheet material, will be greatly prolonged, and its work made more even and effective; also to provide improved means for holding the sheet material, and improvements in details of construction thereof.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing which shows certain forms in which the invention may be carried out, and in which—

Figure 1 is an end view of a portion of a sand wheel showing one form of the invention; Fig. 2 is a plan of parts shown at the bottom of Fig. 1, illustrating the inside of the wheel; and Fig. 3 is a view similar to Fig. 1 showing a modification.

This invention is illustrated as applied to that type of polishing devices ordinarily termed "sand wheels"; although the invention may be used with any kind of polishing or abrading device, in which the operations may be performed by means of a sheet of sand paper, emery cloth, or other material for polishing or abrading surfaces of wood, metal, or any other substance.

In many types of sand wheels the sand paper or other sheet material is held rigidly at both ends, consequently as it stretches out tightly in use, there is a tendency for the material to pucker up or gather in a fold

as the wheel is rotated over the surface to be polished. This is very destructive to the polishing sheet and results in wearing it out at one end much quicker than elsewhere, so that the sheet has to be replaced long before it is entirely worn out.

An important feature of this invention is to provide an efficient and convenient means whereby the polishing material will not be subject to this difficulty, but will be kept smooth so that it will be worn out substantially uniformly from one end to the other, thus greatly increasing its durability.

In the form shown in Figs. 1 and 2, the invention is illustrated as applied to a sand wheel comprising a cylindrical support or drum 10 having a transverse slot 11 there-through. On the inside of the wheel adjacent to the two sides of this slot are a pair of blocks 12 adapted to be fixed in place by means of screws 13 or the like for holding a sheet of padding 14 which may be of felt or any other material ordinarily used for this purpose. These two blocks hold the two ends of this padding rigidly in position. Mounted on the block on one side of the slot is another block 15 adapted to be held in position by any sort of a fastening device, as for example, a set of thumb screws 16 for rigidly holding the end of the sheet 17 of polishing or abrading material such as sand-paper, emery-cloth, or the like. This sheet extends through the slot and around the drum, and is brought back through the slot and instead of being folded over on the other side thereof, is brought across the slot over the end which is held by the block 15. There it is held yieldingly in position. This yielding means is shown in Figs. 1 and 2 as comprising a spring 20 held to the inside of the drum by a screw 21 or the like, and having on the opposite end thereof a plate 22. This plate has a jaw 23, and is provided with a rivet or the like 24 substantially perpendicular to plate on which is pivoted a second plate 25. This plate has a jaw 26 cooperating with the jaw 23, and is provided with a guide pin 27 and a spring 28 for normally holding the jaws closed. The pivot pin 24 is an exceedingly simple device for connecting these plates together, and although by itself it would allow the jaws to swing laterally, this is prevented by the guide pin 27 which would be used any way to hold the spring 28. In use one end

of the abrading sheet is fastened under the block 15 and the sheet is then brought out through the slot and around the drum as has been described, and may be inserted between the jaws 23 and 26 simply by opening them by pressure on the rear of the plate 25.

The drum is rotated or otherwise moved in the direction of the arrow. This causes the end of the abrading material which is fastened by the block 15 to advance ahead of the other end, and consequently any force tending to stretch out and pucker up the abrading material will simply result in allowing the spring 20 to pull the slack up into the inside of the drum so as to keep its operating surface smooth on the outside. This feature of having the rear or receding end of the material yieldingly held so that the slack can be taken up is responsible for the increase in the durability of the sheet.

By the employment of the principles of this invention another great advantage is secured, as the slit 11 through which the sheet material passes can be made much narrower than is the case with ordinary constructions. In fact it need be not much wider than the combined thicknesses of the several sheets of abrading material and padding which pass through, and yet the free end of the former can slip back and forth as occasion requires. This is an important feature, because some of the old forms of sand wheels necessarily have such a wide slit that they leave marks at regular intervals on the work, showing where the sand paper did not touch it.

While the construction above described is exceedingly simple and convenient for accomplishing these purposes, yet it may be replaced by other forms, one of which is shown in Fig. 3. In this form the spring 20 is connected with a flat plate 30 on which is mounted a plate 31 adapted to be fixed on the plate 30 by means of thumb-screws 32 or the like. The two jaws formed at the end of these two plates perform the same office as the jaws 23 and 26 in the other form, but in this case the sheet cannot be inserted quite as readily in the jaws but they hold it positively after it is fixed in position.

While I have illustrated and described certain preferred forms of the invention, I am aware that many modifications may be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited in all respects to the details of construction shown and described, but

What I do claim is:—

1. In a device of the class described, the combination of a support having a slot, a

longitudinally extensible spring connected to the inside of the support, a plate connected with the spring and located between the spring and slot, and a pivoted jaw mounted on the plate.

2. In a device of the class described, the combination of a support having a slot, a spring arranged along the inside of and connected to the support, a plate connected with the spring, a pivoted jaw mounted on the plate, and a second spring mounted on the plate between it and the jaw for yieldingly forcing said jaw toward the plate.

3. In a sand wheel, the combination of a cylindrical support having a longitudinal slit along one side thereof, fixed means on the inside of the support near said slit and on opposite sides thereof for holding a sheet of padding material, fixed means on one side of said slit for holding the end of an abrasive sheet, and readily moving means on the same side of the slit for holding the free end of said abrasive sheet, said movable means comprising a longitudinally extensible spring having one end fixed directly to the inner wall of the drum at a distance from the slit and on the same side as said fixed support for the other end of the abrasive material, a plate in general alinement with said spring and secured to one end thereof, said plate having a fixed jaw thereon, a second jaw pivotally mounted on said plate and cooperating with the fixed jaw, and a spring mounted on said plate between it and the rear of the second jaw for normally holding said jaw closed against the first named jaw.

4. In a device of the class described, the combination with a support, of a spring connected with said support, a plate connected with the spring and having a jaw thereon, a second plate, a rivet perpendicular to said plates by which said plates are pivoted together, said second plate having a jaw cooperating with the first named jaw, and a spring for forcing said jaws together.

5. In an article of the class described, the combination of a rotary support having a slot, a pair of blocks inside the support on opposite sides of the slot for holding a sheet of padding in fixed position on the outside of the support, a second block on one of said blocks for fixedly holding the end of a sheet of abrading or polishing material, and yielding means for holding the other end of the sheet of abrading or polishing material.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

THOMAS NICHOLS.

Witnesses:

AVA A. STEWART,
CATHERINE M. CLANCY.