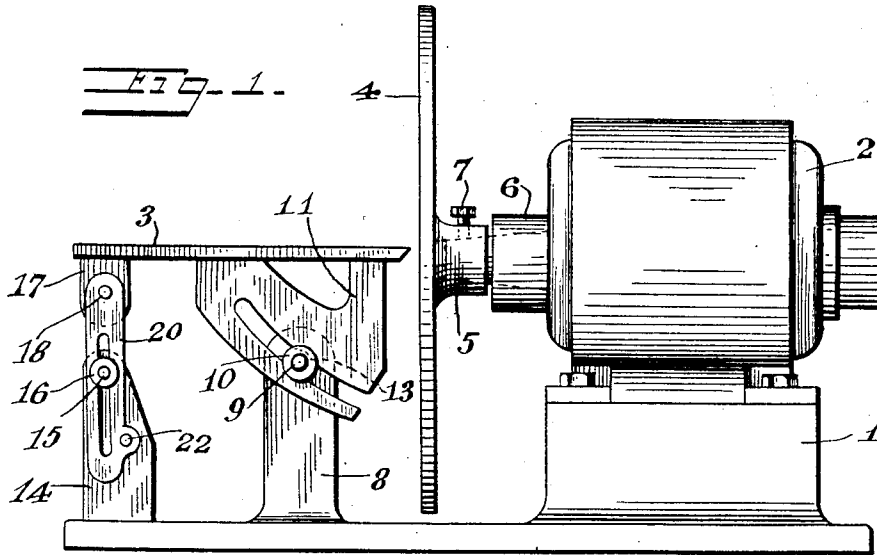
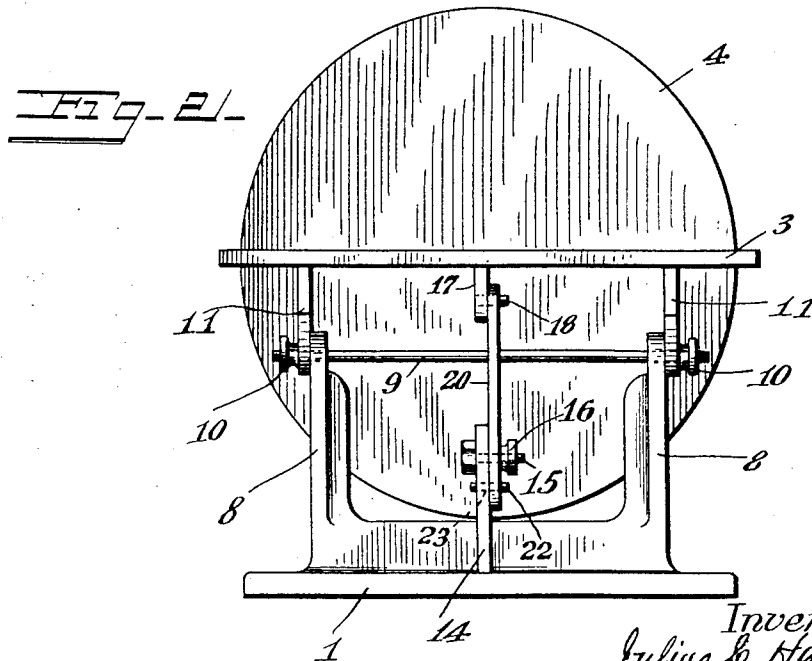


J. C. HANSEN.
SURFACE GRINDING MACHINE.
APPLICATION FILED OCT. 25, 1920.

1,387,646.

Patented Aug. 16, 1921.



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UNITED STATES PATENT OFFICE.

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HANSEN GRINDER COMPANY, OF COOK COUNTY, ILLINOIS, A CORPORATION OF
ILLINOIS.

SURFACE-GRINDING MACHINE.

1,387,646.

Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed October 25, 1920. Serial No. 419,508.

To all whom it may concern:

Be it known that I, JULIUS C. HANSEN, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Surface-Grinding Machines, of which the following is a specification.

My invention relates to machines for surface grinding, in which the objects to be ground are placed upon a work table, in proximity to a revolving abrasive disk, and are brought into contact with the abrasive upon the disk at such portions thereof as desired.

One of the objects of my invention is to provide a disk which can easily and quickly be adjusted upon the operating spindle to always rotate at a right angle to the line of the axis of such rotating spindle.

Another object is to provide a table for supporting the work which is strong, simple in construction and easily and quickly adjustable from one position to another.

Another object is to provide a disk surface grinder which has few parts, is light in weight, low in cost and one adaptable to small shops where high priced complicated machines are not now used.

With the foregoing and other objects in view which will specifically appear in the following specification, my invention consists of the arrangement of parts as hereinafter described and claimed, and while I do not wish to be restricted to the exact details of construction shown herein, yet, for the purpose of illustrating a particular embodiment thereof, reference is had to the accompanying drawings, in which like reference characters designate the same parts throughout the several views, and in which—

Figure 1 is a side elevation showing my surface grinding machine as mounted upon the shaft of an electric motor.

Fig. 2 is an elevation taken from the left in Fig. 1, showing position of the work table and the supporting means.

Referring now particularly to the drawings herein, I have shown in Fig. 1 one embodiment of my surface grinding machine mounted upon the base 1, and have shown an electric motor 2 also suitably mounted upon said base for supplying motion to the grinding disk 4. In the construction of my grinding disk, I have preferably made it of

a circular piece of metal, having one side smoothly finished for attaching abrasive paper or cloth by adhesives or otherwise, as desired, while the other side adjacent to the driving means has the hub 5 at its central portion. For convenience and accuracy in mounting my said grinding disk upon the shaft, I have preferably tapered the end of the shaft as at 6, and have provided a tapered socket to correspond on the hub 5. By this means said grinding disk may be always easily and quickly mounted upon the shaft to run true therewith, and I have provided the set screw 7 to lock said disk upon said shaft against accidental movement or displacement.

Extending upward from the base I have provided the two brackets 8, 8, which may be of any suitable shape to permit boring holes to receive the clamping rod 9, which said rod is preferably threaded at both ends, and has a suitable thumb nut 10 on each end thereof for clamping the downward extending arms of the table against said brackets 8, to lock said table, as hereinafter described.

At 14 beneath the rear of the table I have provided a third bracket extending upward from the base as shown, which is bored to receive the stud 15, threaded at its outer end for receiving the thumb nut 16 for clamping against the slotted arm 20 hereinafter described, for locking said arm in position to hold the table against movement.

The work table 3 is removably mounted adjacent to the grinding disk 4, and has a certain amount of adjustment, both forward and rearward from said grinding disk, and also upward and downward, in addition to the tilting movement provided. My work table 3 has downwardly extending slotted arms 11, 11, adapted to engage the clamping rod 9 outside of the brackets 8, 8, as shown, as by this means whenever the thumb nuts 10, 10 are clamped tightly, they clamp the said slotted arms 11 against the brackets 8, 8 against any movement of the table. At 13, 13 in the said slotted arms, I have provided special recesses to engage the clamping rod 9 when the table is in the position at right angles to the grinding disk. By this construction it is always easily and quickly possible to re-set the table at the position of right angles to the grinding disk, without any calculation or guess on the part of the

operator. At the rear portion of the work table 3 I have provided a downwardly projecting lug 17, immediately above the bracket 14 upon the base. This lug is bored to receive the headless stud 18, and mounted upon this stud 18, is the slotted arm 20, which extends downwardly with the slot thereof engaging the stud 15 on the bracket 14, as above described. By this construction, it will be seen that whenever the table is adjusted to the desired position the thumb nuts 10, 10 are clamped against the arms 11 at its forward portion, and the thumb nut 16 is clamped against the slotted arm supporting the rear, thereby supporting said table in three different places, and securely locking it against accidental movement or any other movement by reason of the giving or springing of the materials employed.

At a suitable point in the slotted arm 20 I have provided the hole 22, and in the bracket 14 a hole 23 in line therewith, designed to receive the pin 24 when the table is positioned at right angles to the grinding disk. Said holes and pin help to locate said table at the exact right angles to said grinding disk, and lock it in said position against any movement until said pin is withdrawn.

While I have shown and described my grinding machine with the disk mounted directly upon the end of the shaft of the driving motor, as this is a very compact and convenient method of mounting it, yet it will be apparent that it may be equally as well mounted upon the end of any driving shaft, or the end of a grinding head or polishing head which is suitably provided for rotating said grinding disk. I have preferably shown my grinding disk as having a tapered socket for mounting upon the tapered end of the shaft by which it is driven, as this is a quick and simple means of mounting the disk so as to always have it turn true to the axis of the shaft, however, if it is desired, this socket may be made with straight sides, for mounting upon a straight shaft, and by making a close fit, will work equally well, without departing from the spirit of my said invention.

One thumb nut 10 may be employed in place of the two as shown, if thought best, as it will clamp said table and reduce the number of parts, without departing from the spirit of my said invention.

While I have shown only one set of recesses 13, 13 for locating the table at the position at right angles to the grinding disk, it will be apparent that additional recesses similar to 13 may be provided at other portions of said slotted arms 11, 11 for quickly and accurately adjusting said table to other desired angles, and additional holes similar to 22 in the slotted arm 20 may be provided to correspond therewith for locking said table in such desired position by means of the pin 24, thereby providing a quick and

accurate method of setting said table at such desired angles.

When it is seen that my grinding machine consists of only three principal parts, a base, a table and a grinding disk, attached together with suitable bolts and nuts, it will be apparent how simple and inexpensive is my construction, and when it is considered that with this simple construction, I also provide positive and simple means for accurately mounting the grinding disk, simple accurate and positive means for adjusting the table to the various positions, and locking it in such positions, with an additional rear support to give it added rigidity and security against accidental movement, or shaking or chattering under strain. And when it is considered that my said grinding machine may be mounted upon the shaft of any suitable driving means, it will be apparent how useful and adaptable it is to any simple and cheap construction for the smaller shops which cannot afford or use the expensive and complicated machines now in general use.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is the following:

1. In a grinding machine of the class described, the combination of a grinding disk, a base provided at the inner portion with a pair of spaced upwardly extending rigid brackets, a horizontal rod connecting the brackets and provided with clamping means, a table provided at its inner portion with rigid depending arms having inclined slots to receive the said rod and engaged by the said clamping means, said table being supported at its inner portion by the upper walls of the said slots and adjustable supporting means connecting the outer portion of the table with the base.

2. In a grinding machine of the class described, the combination of a grinding disk, a base provided at the inner portion with a pair of spaced upwardly extending rigid brackets, a horizontal rod connecting the brackets and provided with clamping means, a table provided at its inner portion with rigid depending arms having inclined slots to receive the said rod and engaged by the said clamping means, said table being supported at its inner portion by the upper walls of the said slots, an outer centrally arranged bracket rigid with and extending upwardly from the base, a pivoted slotted arm carried by the outer portion of the table and clamping means operating in the slot of the latter arm for securing the same to the outer bracket.

3. In a grinding machine of the class described, the combination of a grinding disk, a base provided at the inner portion with a pair of spaced upwardly extending rigid brackets, a horizontal rod connecting the

brackets and provided with clamping means, a table provided at its inner portion with rigid depending arms having inclined slots to receive the said rod and engaged by the said clamping means, said table being supported at its inner portion by the upper walls of the said slots, an outer centrally arranged bracket rigid with and extending upwardly from the base, a pivoted slotted arm carried by the outer portion of the table and clamping means operating in the slot of the latter arm for securing the same to the outer

bracket, and means mounted on the outer bracket and cooperating with the clamping means of the slotted arm for rigidly maintaining the latter in the vertical position. 15

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses.

JULIUS C. HANSEN.

In presence of—

GEORGE E. GOULD,
CHESTER W. BROWN.