

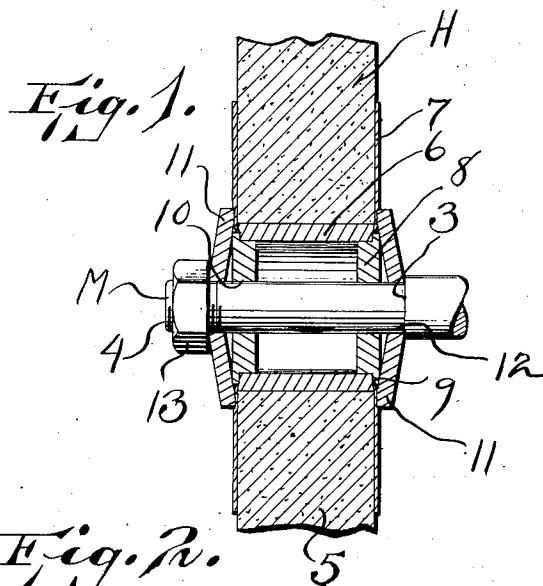
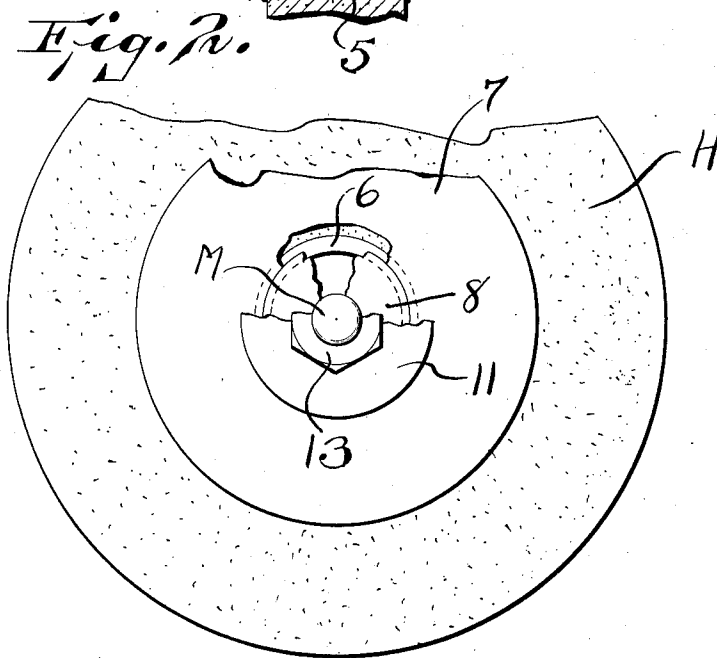
Jan. 23, 1934.

E. BOCKSHE

1,944,489

GRINDER

Filed July 22, 1932



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UNITED STATES PATENT OFFICE

1,944,489

GRINDER

Ely Bockshe, Milwaukee, Wis.

Application July 22, 1932. Serial No. 624,067

1 Claim. (Cl. 51—168)

This invention appertains to grinder wheels and more particularly to novel means for securing a grinding wheel or head on the mandrel or drive shaft of the grinding machine.

Considerable difficulty has been experienced in the proper placing of grinding heads upon their driving shafts or mandrels and the heads have a tendency to slip or work loose from the mandrel or shaft, particularly in the direction of rotation when the shaft is reversed.

It is, therefore, one of the primary objects of my invention to provide a novel grinding wheel and novel means for connecting the wheel to the drive shaft or mandrel of the grinding machine, whereby upon tightening of the holding nut on the mandrel shaft, the grinding wheel will be firmly and rigidly united with the said shaft or mandrel.

A further object of my invention is the provision of a grinding head having a hub sleeve for detachably receiving the hub bearing blocks or plugs having aligned openings for the reception of the shaft, the shaft having mounted thereon, on opposite sides of the grinding wheel, concavo-convex holding discs, which are adapted to be brought into frictional contact both with the shaft or mandrel and the grinding wheel.

A still further object of my invention is to provide an improved device of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawing, in which:

Figure 1 is a fragmentary sectional view illustrating the novel means employed for connecting the grinding head in the mandrel or operating shaft;

Figure 2 is a fragmentary side elevation of the grinding head or wheel, illustrating the means for connecting the same to the shaft or mandrel.

Referring to the drawing in detail wherein similar reference characters designate corresponding parts throughout the several views, the letter "H" indicates a grinder head or wheel, and the letter "M" a mandrel or shaft, with which the grinder wheel or head is to be associated.

The mandrel or shaft "M" can form a part of a conventional grinding machine and, as shown, the shaft is reduced in diameter adjacent to one

end to provide the annular stop shoulder 3 and the extreme outer end of the shaft, or mandrel "M" in spaced relation to the shoulder 3 is provided with threads 4.

The grinder head or wheel "H" includes the stone or abrasive body section 5, having molded therein, the hub sleeve 6 which can be formed of any desired type of metal, such as lead.

Opposite side faces of the grinding wheel or head "H" have pasted or otherwise secured thereon, thin discs 7 formed of compressible material, such as paper, felt, or the like.

Removably seated in the ends of the sleeve 6 are the hub bearing plugs 8. These plugs are preferably formed from steel and have their peripheries rabbeted or cut away to provide annular flanges 9 which engage the outer faces of the hub sleeve 6.

At this point, it is to be noted that the sleeve 6 is of a greater diameter than the reduced portion of the mandrel "M" and that the hub plugs 8 are provided with the aligned axial openings 10 for snugly receiving the reduced portion of the mandrel.

Mounted on opposite sides of the grinder head are the concavo-convex holding or clamping discs 11. These discs are likewise provided with axial openings 12 for snugly receiving the reduced end of the mandrel.

The clamping discs 11 are of a larger diameter than the hub sleeve 6 and are adapted to impinge against the side faces of the grinder head or wheel "H".

In placing the head in position, one of the clamping discs 11 is placed on the reduced end of the mandrel "M" in contact with the shoulder 3, after which the grinding head or wheel "H" with the bearing plugs 8 is slipped on the shaft in engagement with the inner clamping disc.

The outer disc 11 is now placed on the shaft in engagement with the outer face of the grinding head or wheel "H". A holding nut 13 is placed on the threaded portion 4 of the mandrel or shaft "M" in tight contact with the outer disc 11. As the nut is tightened, all of the parts are brought together due to the engagement of the inner clamping disc 11, with the shoulder 3 of the mandrel. The discs 11 will be slightly flexed which will tightly impinge the outer edges of the clamping discs against the opposite sides of the head and at the same time, the bores of the discs 11 will be brought into tight gripping relation with the shaft. It is to be also noted that during the flexing of the discs 11, the same

will also be brought into gripping contact with the hub bearing plugs 8.

In view of the fact that the discs 7 are formed of a compressible material, the clamping disc 9 will be enabled to firmly grip the same.

When it is desired to remove the grinding head, it is merely necessary to remove the nut 13 and pull the grinding head and various parts off of the shaft.

From the foregoing description, it can be seen that I have provided an exceptionally simple and durable means for tightly holding a grinding wheel or head on its supporting shaft or mandrel.

Changes in details may be made without departing from the spirit or the scope of this invention, but what I claim as new is:

The combination with an operating shaft having a threaded end and a shoulder in spaced relation to said threaded end, and an abrasive wheel including a body having an enlarged bore,

of means for rigidly connecting the grinding wheel with the shaft for rotation therewith including a hub sleeve fitted in the bore of the wheel for movement therewith and of a greater diameter than the shaft, hub bearing plugs fitted in the opposite ends of the sleeve and provided with annularly outstanding flanges engaging the opposite outer faces of the sleeve, a pair of concavo-convex discs having their peripheral edges engaging the opposite sides of the wheel, their inner faces, and the edges of the hub plugs, the clamping discs and the hub plugs being provided with axially aligned bores for snugly receiving the shaft, one of the discs engaging the shoulder on the shaft, a nut fitted on the threaded end of the shaft in engagement with the other clamping disc, and compressible discs secured to the opposite faces of the wheel and inter-posed between the side faces of the wheel and the clamping discs.

ELY BOCKSHE.

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