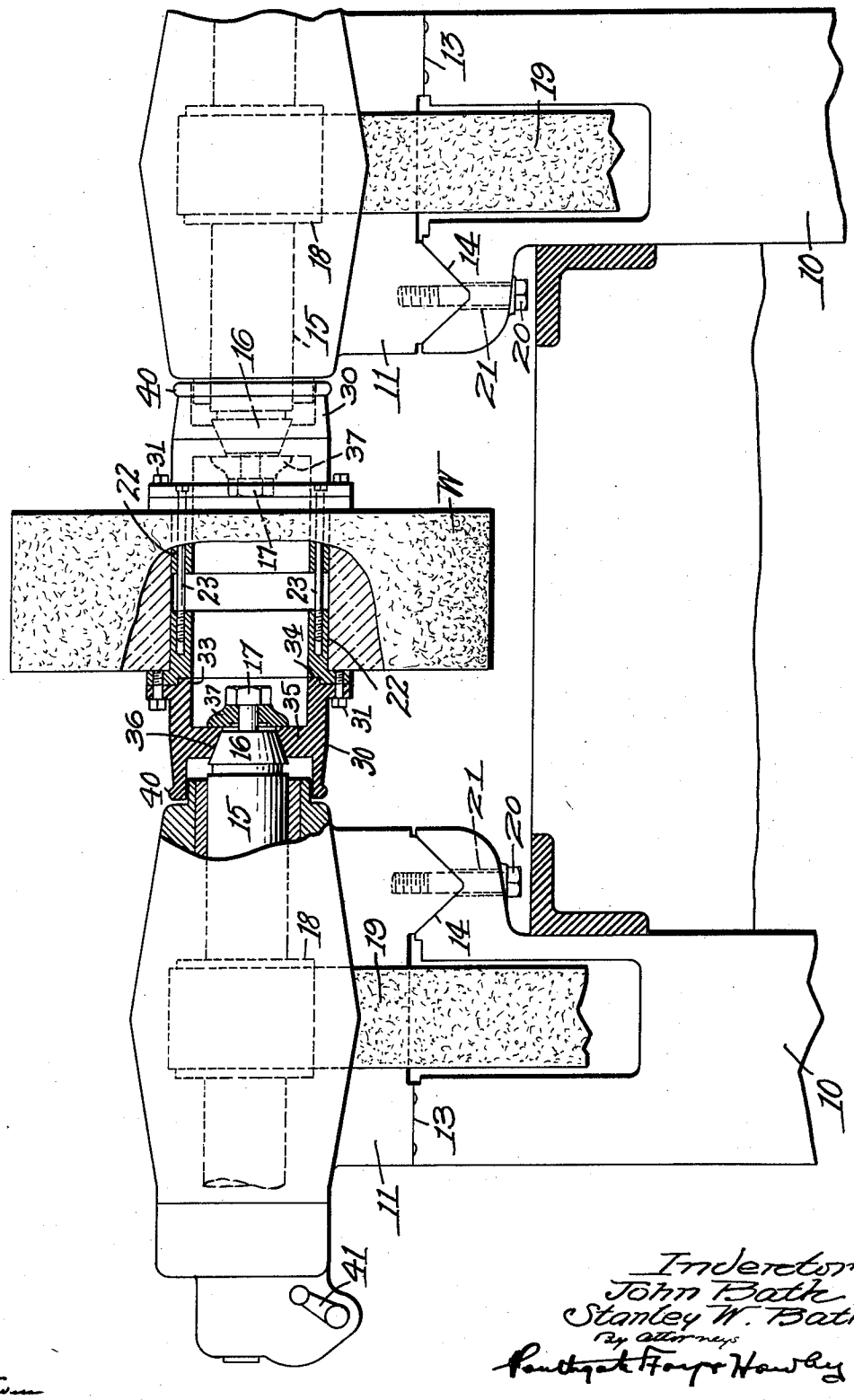
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AUXILIARY SPINDLE FOR GRINDING WHEELS

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AUXILIARY SPINDLE FOR GRINDING WHEELS

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This application is a division of our prior application Serial No. 659,704, filed by us March 6, 1933.

This invention relates to grinding machines and particularly to the mounting or support of a grinding wheel therein.

Duplex grinding machines are commonly provided with two grinding heads, each head having its own wheel spindle and each spindle usually supporting a separate grinding wheel. It is at times desirable to use a single extra wide or heavy wheel in a duplex grinding machine and to support and drive this single wheel jointly by both wheel spindles.

It is the object of our invention to provide an improved auxiliary spindle for a grinding wheel, adapted to jointly support said wheel on the two regular wheel spindles of a duplex grinding machine.

Our invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawing which is a front elevation, partly in section, showing our improved auxiliary spindle and associated parts of a duplex grinding machine.

In the drawing we have shown a portion of the frame 10 of a duplex grinding machine and we have shown grinding heads 11 slidable forward and rearward on guideways 13 and 14 formed on upper surfaces of the frame 10. Each wheel head 11 is provided with bearings for a regular wheel spindle 15, preferably provided with a conical end portion 16 which is axially threaded to receive a clamping bolt 17. Each spindle 15 is rotated in any convenient manner, as by a pulley 18 and driving belt 19.

A clamping bolt 20 is provided for each wheel head 11, said bolt being threaded into the lower portion of the wheel head and extending through a slot 21 in a portion of the bed 10. By tightening the clamping bolt 20, the wheel head may be firmly secured in any adjusted position on the guideways 13 and 14.

We will now describe the special auxiliary spindle construction by which a wide face or heavy grinding wheel W may be supported by and between the two regular wheel spindles 15.

For this purpose, we first provide a pair of flanged bushings 22 adapted to be inserted from each side of the wheel W in an axial opening thereof and to be secured therein by clamping bolts 23 extending through openings in one of the bushings and threaded into corresponding openings in the other bushing.

A supporting member 30 is secured to each bushing 22 by bolts 31, suitable provision being made for axially centering each member 30 relative to its bushing 22. In the drawing we have shown the members 30 as provided with annular end projections 33 fitting in corresponding recesses 34 in the ends of the flanged bushings 22.

Each supporting member 30 is provided with a transverse partition or web 35 having an axial conical opening 36 fitting the conical end 16 of the associated regular wheel spindle 15.

Each member 30 is firmly secured to its associated spindle 15 by one of the clamping screws 17 previously described. Each screw 17 is provided with a washer 37 engaging a surface of the partition or web 35. The supporting member 30 may also be provided with a longitudinally extended portion 40 fitting loosely over the end of the wheel spindle bearing and acting to exclude dirt therefrom. Handles 41 are provided for withdrawing either or both of the wheel spindles 15 axially to permit removal or replacement of a wheel W.

When our auxiliary spindle is to be used, the wheel heads 11 are first adjusted on their guideways to bring them into accurate axial alignment and may then be firmly secured in such alignment by the clamping bolts 20.

From the preceding description it will be evident that we have provided simple and effective means for firmly supporting a grinding wheel jointly on two associated wheel spindles and for attaining accurate alignment of said wheel spindles and the auxiliary spindle, so that these three parts form in effect a single wheel shaft when the auxiliary spindle is in use.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:—

1. In a grinding machine having two wheel heads each provided with a wheel spindle, in combination, an auxiliary wheel spindle comprising a pair of flanged bushings, means to clamp said bushings in axial position in a grinding wheel, a pair of supporting members, means to center and secured each supporting member on one of said flanged bushings, and means to center and secure each of said members on one of said wheel spindles.

2. In a grinding machine having two wheel heads, each provided with a wheel spindle having

a conical end portion, in combination, an auxiliary wheel spindle comprising a pair of flanged bushings, means to clamp said bushings in axial position in a grinding wheel, a pair of supporting members, means to center and secure each supporting member on one of said flanged bushings, each supporting member having a conical recess fitting the conical end portion of the associated wheel spindle, and means to secure each of said members to its associated spindle.

3. In a grinding machine having two wheel heads, each provided with a wheel spindle, in combination, an auxiliary wheel spindle comprising middle elements secured in axial position in the grinding wheel, end members centered and secured to said middle elements, and means to center and secure each of said end members to one of said wheel spindles.

4. In a grinding machine having two wheel heads, each provided with a wheel spindle, in combination, an auxiliary wheel spindle comprising middle elements secured in axial position in the grinding wheel and adjustable to different widths of wheel, end members centered and secured to said middle elements, and means to center and secure each of said end members to one of said wheel spindles.

5. In a grinding machine having two wheel heads, each provided with a wheel spindle, in combination, an auxiliary wheel spindle comprising middle elements secured in axial position in the grinding wheel, end members secured to said middle elements, said middle elements and end members having cooperating annular end portions by which said end members are centered with said wheel, and means to center and secure each of said end members to one of said wheel spindles.

6. In a grinding machine having two wheel heads each provided with a wheel spindle having a conical end portion, in combination, an auxiliary wheel spindle comprising middle elements secured in axial position in the grinding wheel, end members centered and secured by annular end portions to said middle elements and each having a conical recess fitting the conical end portion of the associated wheel spindle, and means to secure said end members to said wheel spindles.

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