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P. H. BRANDES ET AL

SECTIONAL GRINDING WHEEL

Filed Aug. 31, 1925

Fig. 1

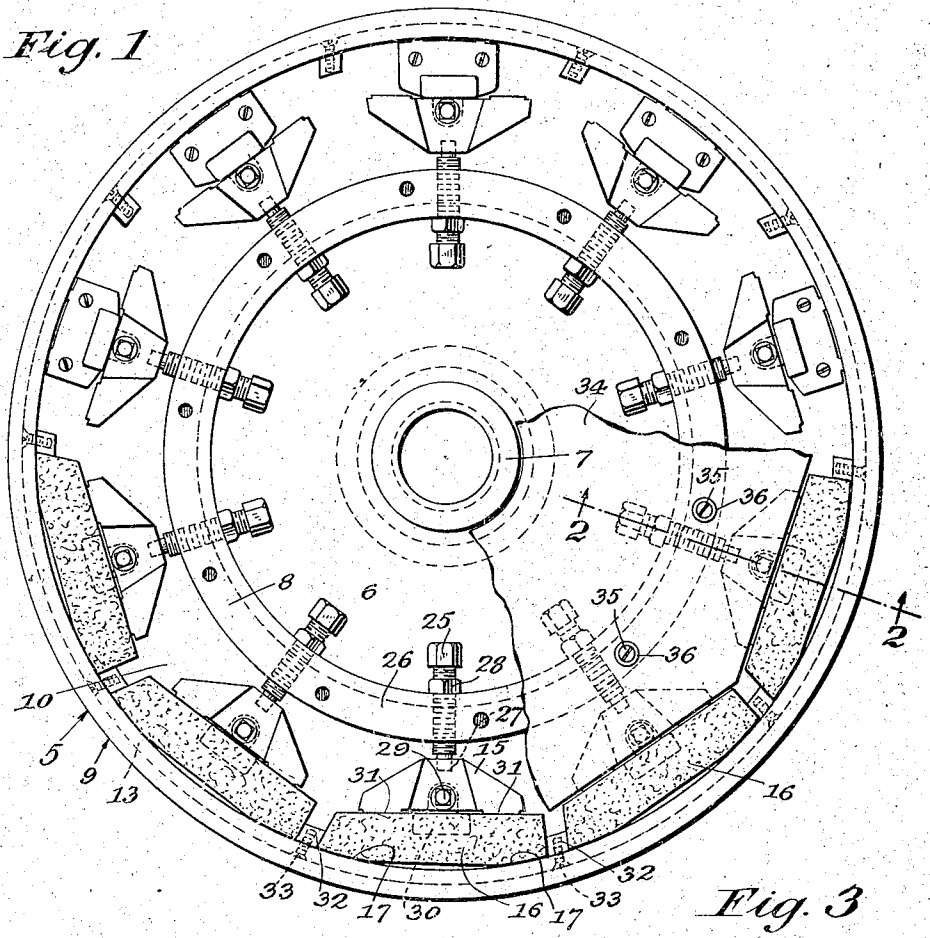
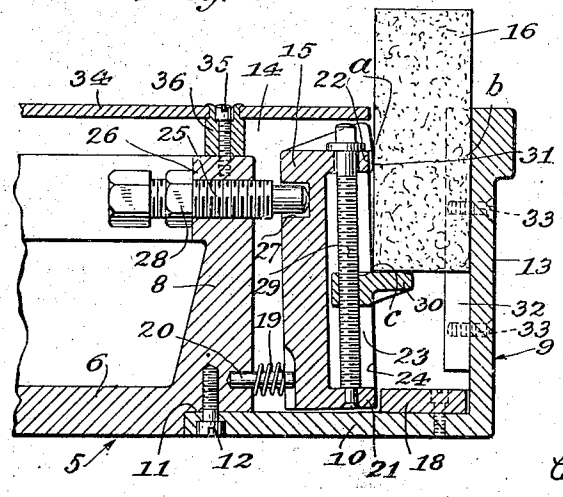
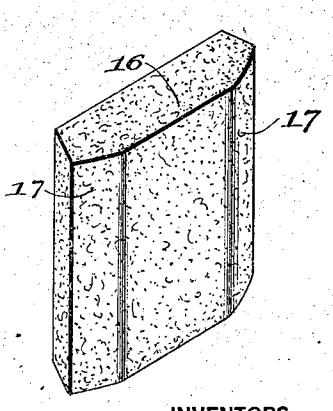


Fig. 3

Fig. 2





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SECTIONAL GRINDING WHEEL.

Application filed August 31, 1925. Serial No. 53,646.

This invention relates to new and useful improvements in abrading or grinding machinery and has particular reference to sectional grinding wheels.

An object of the invention is to provide a novel chuck means for adjusting the abrasive element or elements of a sectional grinding wheel to bring the active face or faces thereof into a new position or positions as it or they become worn, such adjusting means operating in a positive manner and in the case of a grinding wheel utilizing a plurality of abrasive elements, being such that the element may be adjusted independently of each other to keep their active faces in alignment as they become worn or broken.

Another object is to provide an improved clamping jaw for the abrasive element together with means for securing it in the grinding wheel in a manner to prevent breakage of the grinding element, such jaw, mounting the means for adjusting the grinding element.

Additional objects and advantages will become apparent from a consideration of the following specification taken in connection with the accompanying drawings wherein:—

Fig. 1 is a view partly in section and partly in elevation showing my improved grinding wheel, some of the abrasive elements being omitted;

Fig. 2 is an enlarged sectional view along the line 2—2 of Fig. 1; and

Fig. 3 is a perspective view of the abrasive element alone.

Referring in detail to the drawing the numeral 5 indicates the wheel in its entirety, the same comprising a disc portion 6 together with a hub 7 and an outer rim or flange 8 which is arranged at an angle to the disc or body portion 6. An annular extension 9 is secured to flange 8. Extension 9 is substantially L-shaped in cross section and has its wall 10 fitted into a cutout portion 11 of flange 8 and is secured to the flange by screws 12 or other suitable fastening means. The outer wall or flange 13 of the extension 9 extends parallel with or substantially parallel with the outer periphery of flange 8. This structure provides a wheel having an annular channel 14 which opens out to one side of the wheel.

Arranged at equally spaced points in the channel 14 are a plurality of jaws or clamping members 15 for securing a like number of similarly spaced abrasive or grinding elements 16. Since each of these jaws and its associated parts are of exactly the same construction a detailed description of one will suffice for all.

Abrasive blocks or elements 16 are adapted to be clamped against the inner periphery of the outer flange 13. To this end the grinding elements have their two outer bearing portions 17 curved to the same degree of curvature as that of the inner periphery of flange 13 so that they snugly engage the same at these points when in position in the wheel, while the more central surface is straight thus free from engagement.

The jaw 15 (Fig. 2) is positioned inwardly of the elements 16 and is held in place by means of a screw 25 and the stop 18 cooperating with a coil spring 19 and a pin 20 about which the spring is positioned. Spring 19 expands against the rearward portion of jaw 15 in a manner to tend to shove it forward and particularly to hold element 16 in position while being adjusted and clamped. When the element 16 becomes shortened and is moved outwardly by adjustment of screw 29, the stop 18 becomes engaged by the part 21 and forms a stop therefor in a manner to utilize the pressure of the screw 25 against the point *a* of block 16 and of the part 21 against stop 18 and when the element 16 has been moved outwardly the forward end of the jaw 15, being provided with a part or extension 22 extending in the same direction as does part 21, forms the bearing portion of the jaw. This stop 18 also serves to prevent the jaw from falling out of place when element 16 is removed for replacement or the like. The forward end of the jaw 15 is provided with a part or extension 22 extending in the same direction as does part 21 and forming the bearing portion of the jaw.

That portion of the jaw between parts 21 and 22 is hollowed out as at 23 and part 22 extends below the walls 24 of said hollowed out portion and is the only part of the jaw which contacts with the element 16. An inspection of Fig. 2 will show that the jaw 15 is arranged at an incline within channel 14, the part 21 being lowest and the jaw inclining toward the front or contacting part 22. The pressure is applied to the grinding ele-

ment forwardly of the center thereof and has a tendency to tilt the same. In this way there is provided what is substantially a three point contact for securing element 16 in place in the chuck, the pressure being applied at points *a*, *b* and *c*.

An adjusting screw 25 is threaded through the thickened portion 26 of the flange 8 and has its lower end smooth and fitted within a socket 27 in the jaw. This screw, as will be readily understood, is adjustable to loosen or clamp element or abrasive 16 in place. A jam nut 28 is provided on screw 25 for securing it in adjusted position against casual displacement.

Journaled in the parts 21 and 22 of the jaw 15 is a feed screw 29. This screw is arranged within the hollow 23 and has a follower 30 mounted thereon. As shown the follower has a projecting portion which contacts with the rear end of the grinding element 16 and when screw 25 is loosened the feed screw 29 will feed the follower forward, when properly manipulated, to adjust the element 16. From the foregoing it will be seen that when the element 16 becomes worn it may be adjusted to bring its active face forwardly of the side of wheel 5.

To provide for the more efficient clamping of the element 16 the active face of part 22 of the jaw 15 is provided with a pair of lands 21. These lands bear on the element at opposite sides of its center line and serve to better distribute the pressure which is directly opposite the bearing portions of the block so as to prevent breakage of the block. Separating or spacing strips 32 are arranged between the elements, the strips being secured to flange 13 by screws 33 or other like fastening means.

If desired a cover plate 34 may be positioned over the forward face of the wheel. This cover plate is preferably secured to flange 8 by means of screws 35. To make the connection solid, fillers 36 are placed on the screws 35 and contact both with the plate 34 and the forward face of flange 8. The heads of the screws 35 are sunk flush with the surface of the plate so there will be no projecting parts except the active faces of the grinding elements.

While we have shown and described a satisfactory embodiment of our invention it is to be understood that the disclosure is for the purpose of illustration only and that various changes in construction and arrangement of parts may be made within the scope of the appended claims to which reference must be had for a definition of the limitations of the invention.

Having thus described our invention what we claim and desire to secure by Letters Patent is:—

1. In a grinding wheel having a pair of spaced flanges, a jaw arranged between said flanges for pressing a grinding element against one of them, and separately operatable means carried by said jaw for adjusting the position of the grinding element relative to the flanges to feed the element forward, and means preventing casual displacement of said jaw when the grinding element is removed from between the flanges, said means permitting manual removal of the jaw.

2. In a grinding wheel having a pair of spaced flanges, a jaw arranged between said flanges for securing a grinding element therebetween, and separately operatable means carried by said jaw for adjusting the position of the grinding element relative to the wheel to feed the element forward when it becomes worn.

3. In a grinding wheel including a pair of spaced annular flanges, a radially operable jaw arranged between said flanges for securing a work engaging and finishing element therebetween, and independently operatable means including a feed screw carried by said jaw for feeding said element forwardly from between the flanges when it becomes worn.

4. In a grinding wheel having a pair of spaced flanges, a jaw arranged between said flanges for pressing a grinding element against one of them to secure it in place, a feed screw carried by said jaw, and a follower cooperating with the feed screw to adjust said element outwardly beyond the flanges as it becomes worn.

5. In a grinding wheel having a pair of spaced flanges, a jaw arranged between said flanges for securing a grinding element therebetween, a feed screw journaled by said jaw, a follower arranged in the rear of said element and operable by said feed screw, said feed screw operable to move the follower toward and from the element, and adapted upon proper manipulation to cause the follower to engage and move the element to adjust the operative face thereof to a new position as it becomes worn.

6. In a grinding wheel, a series of grinding elements, a series of holders therefor each adapted to receive an element and support the same with their active faces projecting beyond the holders, and independently operable means carried by each holder to adjust the elements when they become worn to move their active faces beyond the holder.

7. In a grinding wheel having a pair of spaced flanges forming a channel, a jaw in said channel for clamping a grinding element therein, a stop in said channel for holding the jaw therein when the element is removed therefrom, a feed screw journaled by said jaw, a follower on the feed screw in the rear of said grinding element for moving the latter forwardly when the

screw is manipulated whereby to maintain the active face of the element beyond the mouth of the channel.

8. In a grinding wheel having a pair of spaced flanges forming a channel, a jaw in said channel for clamping a grinding element therein, a stop in said channel for holding the jaw therein when the element is removed therefrom, a spring normally urging said jaw toward said stop, a feed screw carried by said jaw, and a follower operated by said screw for adjusting said element forwardly to maintain its active face beyond the mouth of the channel.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 29th day of August, A. D. 1925.

PAUL HERMAN BRANDES.
JOHN W. ADAMS.