C. HAYES, Jr.

GRINDING MACHINE.

APPLICATION FILED AUG. 5, 1909.

961,774. Patented June 21, 1910.

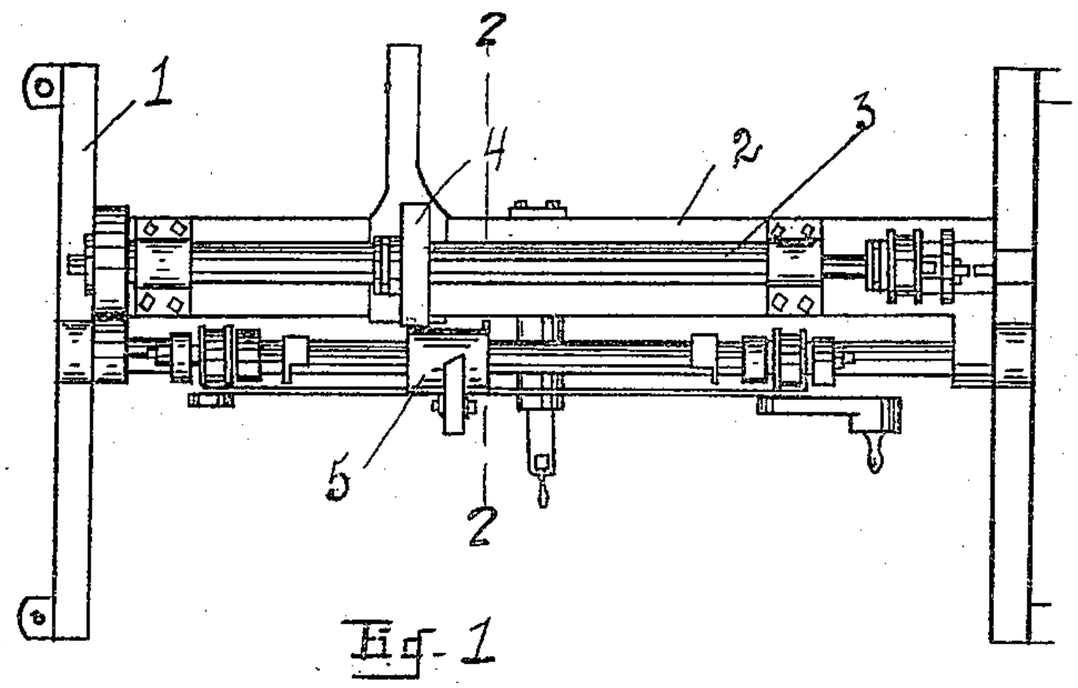


Fig. 1

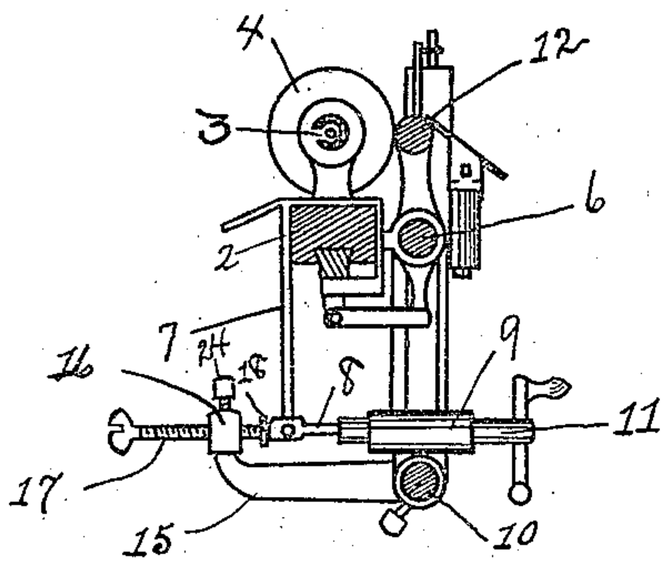


Fig. 2

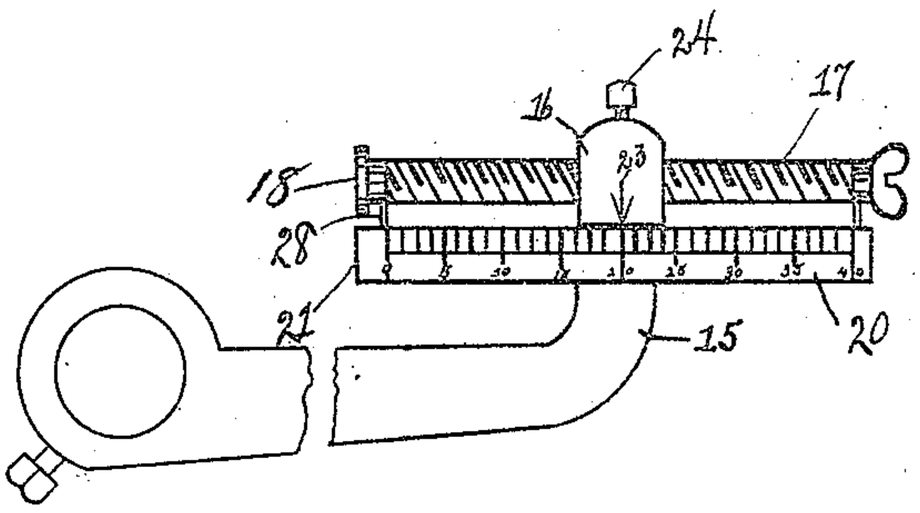


Fig. 3

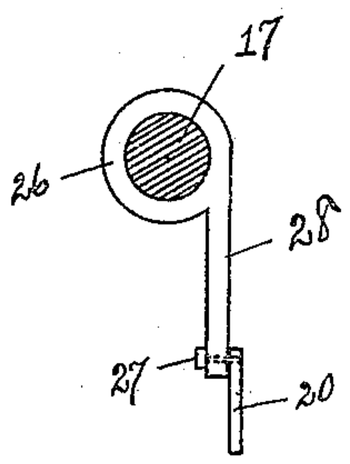


Fig. 4

WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES HAYES, JR., OF UTICA, NEW YORK.

## GRINDING-MACHINE.

961,774. Specification of Letters Patent. **Patented June 21, 1910.**

Application filed August 5, 1909. Serial No. 511,320.

*To all whom it may concern:*

Be it known that I, CHARLES HAYES, JR., citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Grinding-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improvement on a grinding machine, and I declare the following is a full, clear, concise and exact description thereof, sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

The invention is shown as here applied to a machine described in a certain patent granted to H. E. Kay October 7, 1890, No. 437,996. In that patent is set forth a machine for grinding the leather covered rolls which are used in spinning machines. It is of the prime importance that these rolls should be exactly true in their diameter from end to end and that the rolls of a given series or set, as for a particular machine, or a particular work, should be exactly alike. The machine mentioned consists of oppositely disposed arbors for holding the roll to be worked and a grinding wheel which travels to and fro along the roll and which is mounted on a bracket which may be swung to bring the grinding roll to and from the roll which is being trued.

My invention consists in a device which can be mounted on this machine and by which the feed of the grinding roller can be determined to a nicety and maintained in the determined position throughout the operation and by which it can be again adjusted to the same point when necessary to do like work.

In the drawings Figure 1 is a plan view illustrating the machine mentioned, and Fig. 2 is a transverse vertical sectional view on line 2—2 of Fig. 1, showing the device which is the subject of this invention. Fig. 3 is an enlarged view of the said device detached, showing in detail the construction of the same and one of its features, and Fig. 4 is an enlarged detailed view illustrating the measuring portion of the device.

Referring to the figures in detail, 1 represents a frame having a table 2 on which is mounted a bar 3 which carries a grinding wheel 4, all assembled and operating in the manner substantially as set forth in the said patent. 5 may represent the roller which is being operated. The grinding wheel 4 is mounted on a bracket pivoted on the shaft 6 and having a downward extending arm 7 to which is connected a link 8. Collar 9 is pivotally swung on the shaft 10.

11 is a shaft screw-mounted through the collar 9 and the link 8 is connected to shaft 11 so that by rotation of the shaft 11 the link is thrust outward or drawn backward to swing the bracket with which the other end of the link is connected on the shaft 6 which brings the grinding wheel 4 more or less to the roller which is to be trimmed and which is carried on the axis of shaft 12.

The device of the invention consists of an arm 15 carried on the shaft 10 together with collar 9 with a head 16 in which is screw-mounted an adjustment stop 17 with a headed portion 18. The principle of the device is that the adjustable stop 17 may be positioned to limit the outward thrust of the link 8 and a corresponding inner movement of the grinding wheel 4.

In case a single roller is to be trued to a certain diameter, the stop is brought to the proper position for such a result. The grinding operation is then begun, which is carried from one end to the other of the roller and is continued until the operation is completed. Heretofore it has been necessary for the operator, from time to time, to test the roller by calipers, and there has likewise been error in getting the roller to the exact diameter. With my improvement, however, when the adjustable stop has been set, the operator by turning the shaft 11 as the work progresses has no need of making periodic tests, but continues the operation until the stop prevents further grinding. A second roll may then be done without any readjustment of the stop, but simply by swinging the grinding wheel back as far as necessary to allow insertion of the new roller, when the operation is continued and automatically stopped at the proper time.

It will be understood that the devices which position the grinding roller move from end to end of the machine and that the arm 15 on shaft 10 travels with them.

In order to facilitate readjustment of this automatic stop for the duplication of sets of rollers, I show one means for determining the position of the stop. On the

threaded screw or shaft 17 is hung a graduated rule, such as 20, it being hung so that the end 21 is flush with the end 18 of the stop and so that it does not swing longitudinally. An index point 23 is marked on the head 16 in which is mounted a set screw 24, which bears against the threaded screw or shaft 17 and holds same in its adjusted position.

The construction being well known need not be further described or set out.

In hanging the graduated rule it should be hung so that its supports occupy the space of a cutout 26 in the screw 17, and this is indicated by the form of construction shown in Fig. 4 where the bearing surface of the support is a loose bushing 26. The graduated rule is fastened to the support by short screws or bolts 27.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a grinding machine consisting of an arbor for the support of work and a swingable grinding member, the combination of an adjustable stop mounted independent of the grinding member and positioned to limit the movement of the grinding member whereby to standardize a plurality of rolls, substantially as described as to the diameter thereof.

2. In a grinding device, the combination with a swinging grinding member, of means mounted independent of the grinding member and adjustable to determine the limit of movement of said grinding member against its work, substantially as described.

3. In a grinding machine, the combination with a traversing grinding member, the same being mounted to swing transversely of the line of its travel, of an adjustable stop-member abutting the grinding member in its latter movement the same comprising an arm mounted to travel and swing with the bracket and an adjustable member carried thereby forming a stop for the movement of the bracket, whereby, upon adjustment of the parts, a series of objects may be ground circumferentially to a given standard, substantially as described.

4. In a grinding machine, the combination with a grinding member adapted to travel to and fro lengthwise the machine and to swing transversely, of a stop mechanism for standardizing the extent of such swing in a number of grinding operations, the same comprising an adjustable stop-bar, an arm supporting the same and a scale hung on the bar with reference to which to position the bar, substantially as described.

5. In a grinding machine, the combination of a frame, means supporting a roller or the like to be ground, a grinding member swingably mounted, a swingable bracket mounted to pass from end to end of the machine and having means to press the grinding member to the work, an arm mounted to travel and swing with the bracket, an adjustable member carried thereby forming a stop for the movement of the bracket, and index means whereby to standardize the position of said stop for a series of grinding operations, substantially as described.

6. In a grinding machine, the combination of a traversing swinging bracket operative to position the grinding member and traversing means mounted independent of the bracket and coacting with the said bracket whereby to limit the swing thereof, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES HAYES, Jr.

Witnesses:

Eleanor T. De Giorgi,

T. L. Wilder.