March 3, 1970 R. W. SAUER 3,498,549

END PLATE FOR INK MILL

Filed Aug. 18, 1967

Fig. 1.

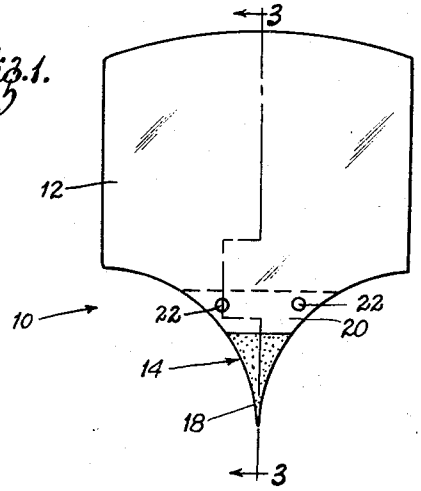


Fig. 2.

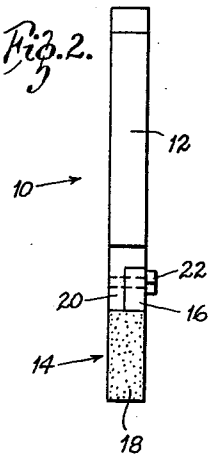


Fig. 3.

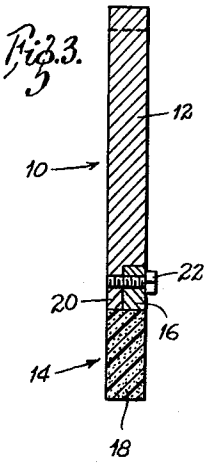


Fig. 4.

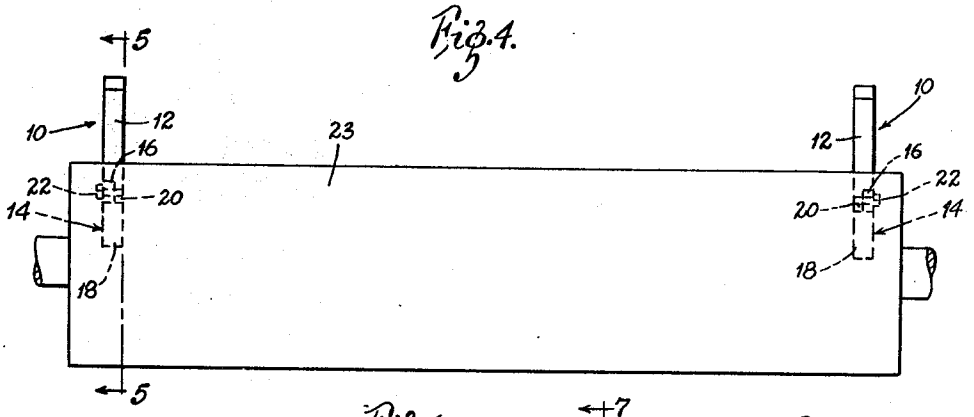


Fig. 5.

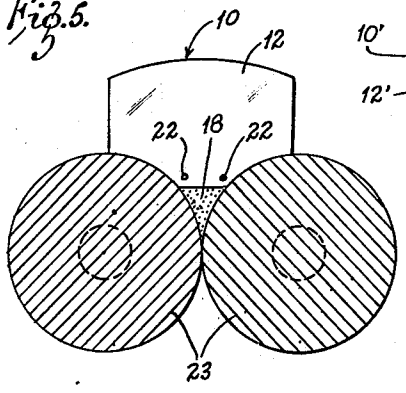


Fig. 6.

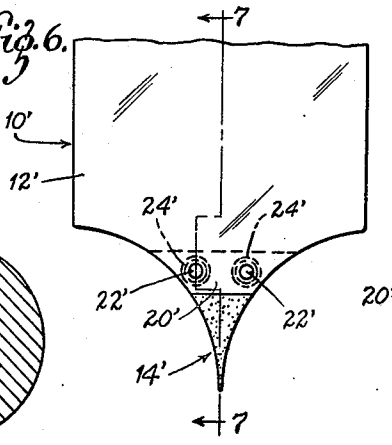
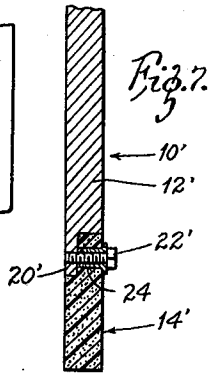


Fig. 7.



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END PLATE FOR INK MILL

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U.S. Cl. 241—226 2 Claims

ABSTRACT OF THE DISCLOSURE

An end plate for roll type grinding mills, as ink mills, and the like, comprising a main metal body to which is secured, preferably removably, a tip of polyurethane, and the like.

BACKGROUND OF THE INVENTION

Field of the invention

The present invention relates generally to grinding mills, and more particularly to a novel end plate for ink mills and the like.

Description of the prior art

Simple ink mills, and the like, include a container, adjacent rolls for grinding, and removable end plates which keep the ink or other material being ground from working off the ends of the rolls. Heretofore, these plates have been made of a solid piece of metal. The tip which fits down between the rolls is readily chipped and broken with the result that the plate must be replaced or the ink will not be properly ground due to leakage at the ends of the rolls through the chipped or broken part of the end plate. Expensive downtime often results when an end plate is damaged and a replacement plate is not immediately available. There results the expense of plate replacement. Hence, there has long been the need for an end plate for such mills to obviate the foregoing problems.

SUMMARY OF THE INVENTION

In brief, the present novel end plate for grinding mills comprises a main metal body and a replaceable tip plate including a metal base to which is bonded a polyurethane tip. The tip plate is bolted or otherwise secured to the main plate. The tip plate may be wholly of polyurethane, and the like, incorporating mounting ferrules, or the like.

Therefore, an object of the present invention is to provide a novel end plate for grinding mills, as ink mills, which fulfills the long existing need for an efficient item; which reduces the costs of end plate replacement and substantially eliminates downtime; which incorporates a nonchippable or non-breakable tip and is of a material snugly engaging the ink mill rolls; and which otherwise fufills the objects and advantages sought therefor.

The foregoing and other objects and advantages are apparent from the following description taken with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is an inner side view of an ink mill end plate incorporating the teachings of the present invention;

FIGURE 2 is an end view thereof;

FIGURE 3 is a cross-sectional view taken on substantially the line 3—3 of FIGURE 1;

FIGURE 4 is a side elevational view of a pair of adjacent ink mill rolls with a present end plate disposed therebetween at each end thereof;

FIGURE 5 is a transverse, cross-sectional view taken on substantially the line 5—5 of FIGURE 4;

FIGURE 6 is an inner side view similar to FIGURE 1 showing another preferred embodiment, the top portion being broken away to save space; and

FIGURE 7 is a cross-sectional view taken on substantialy the line 7—7 of FIGURE 6.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings more particularly by reference numerals and specifically considering FIGURES 1–5, **10** indicates generally an ink mill end plate incorporating the teachings of the present invention. The end plate **10** includes a main body **12** of metal, and the like, and a tip unit **14**. The tip unit **14** includes a metal strip **16** and a polyurethane tip **18** of greater thickness which is bonded to the strip **16** by known methods, as by applying the polyurethane in a liquid state to the strip **16** in a mold. The main body **12** includes a reduced lower lip or seat **20** having threaded apertures therethrough. The lip **20** receives the upwardly extending strip **16**, bolts **22**, or the like, securing the parts firmly together. The ends or edges of the tip unit **14** and the curved portions of the bottom edge of the main body **12** are on substantially the radius of ink rolls **23** with which the end plate **10** is employed.

In FIGURES 4 and 5, the end plate **10** is illustrated in operative position on the adjacent ink mill rolls **23**. It will be understood that means are provided for holding the end plates **10** in position and for removing and turning them as for roll and plate cleaning, plate placement, and the like, but such structure forms no part of the present invention, hence, has been omitted as nonessential to the present disclosure.

In FIGURES 6 and 7 is shown a modified end plate **10'** having a main body **12'** and a tip unit **14'**. The tip unit **14'** is wholly of polyurethane and includes flanged ferrules **24** which receive the bolts **22'** secured in threaded openings in the lip **20'**. The ferrules **24** may be flanged, as shown, or simply annular.

The polyurethane material employed in the tip **18** and the tip unit **14'** is strong, flexible and resilient, thereby obviating fracture and breakage. It is exceedingly long wearing, renders efficient service indefinitely, and resists deterioration from cleaning materials. The invention has been described in connection with an ink mill, but it is applicable to other mills requiring such end plates.

It is thus apparent that there has been provided a novel end plate for ink mill rolls, and the like, which fulfills the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawings have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the arts, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. In combination, an end plate for grinding mill rolls to prevent end spillage of material being ground com-

prising a main body, a tip unit, and means connecting the tip unit to the main body, said tip unit including a tip of polyurethane.

2. The combination of claim 1 and including ferrules in the polyurethane material for attaching the tip unit to the main body.

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U.S. Cl. X.R.

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