(No Model.)

D. A. SCALLEN.

ROLLER GRINDING MILL.

No. 488,455. Patented Dec. 20, 1892.

Fig. 1.
on line x-x

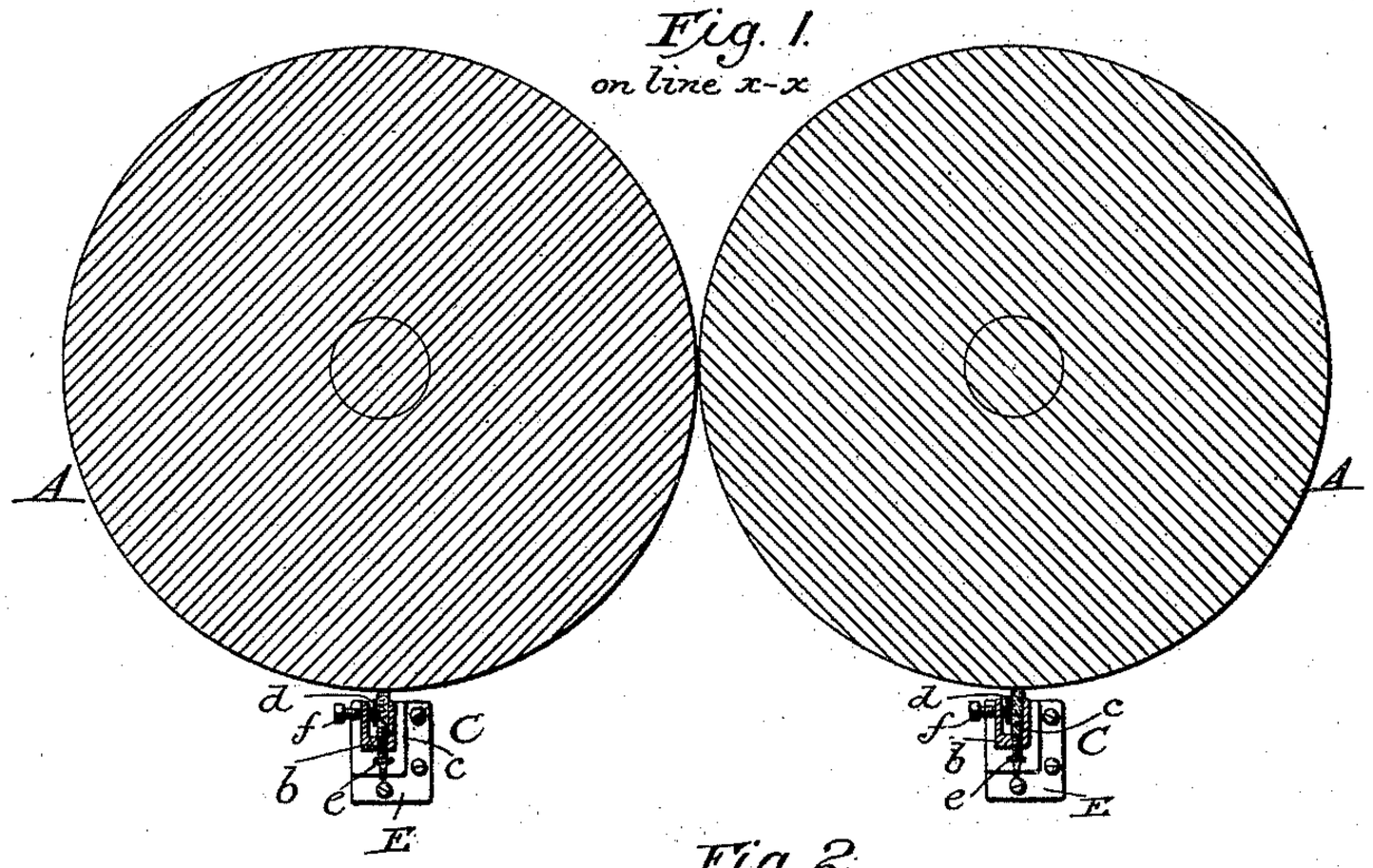


Fig. 2.

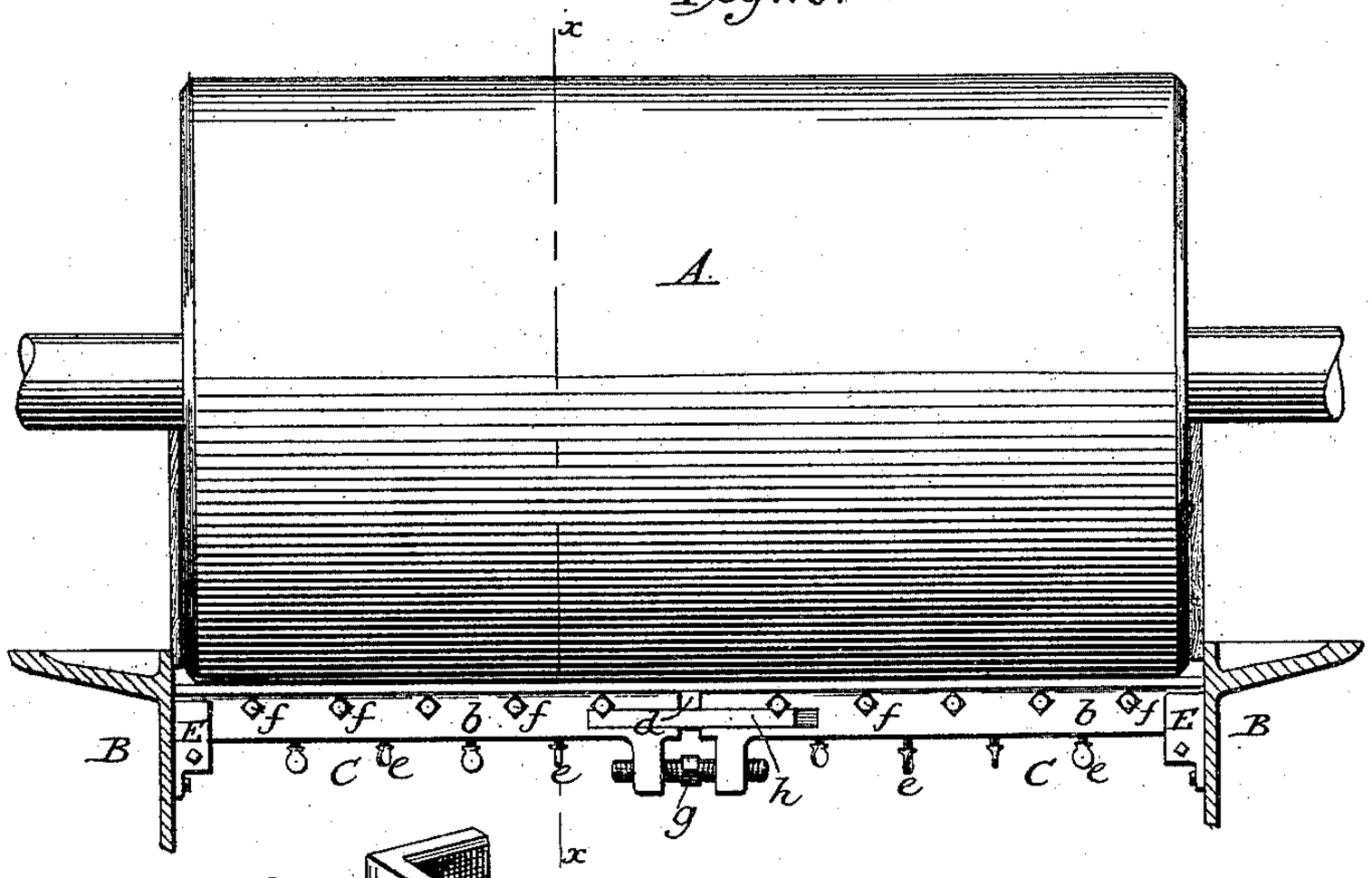


Fig. 3.

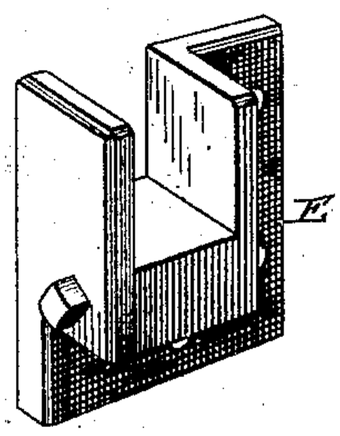
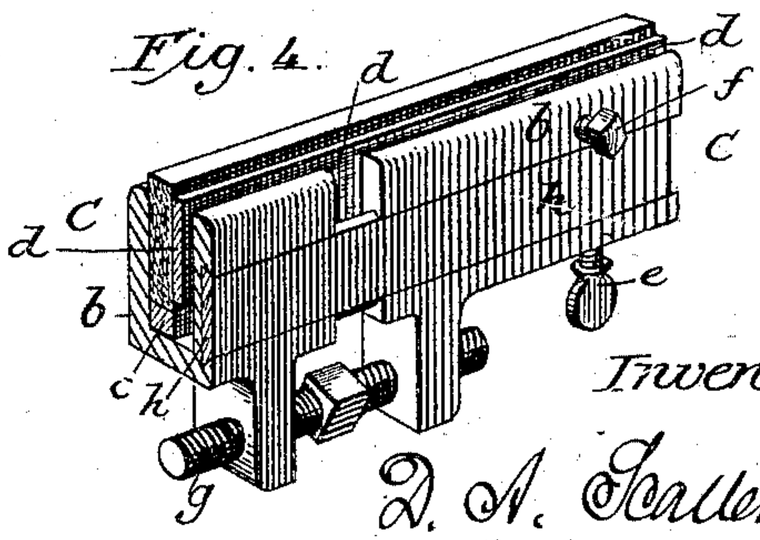


Fig. 4.



Attest

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UNITED STATES PATENT OFFICE.

DANIEL ALBERT SCALLEN, OF ELLICOTT CITY, MARYLAND.

ROLLER GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 488,455, dated December 20, 1892.

Application filed December 4, 1886. Serial No. 220,667. (No model.)

To all whom it may concern:

Be it known that I, DANIEL ALBERT SCALLEN, of Ellicott City, in the county of Howard and State of Maryland, have invented certain new Improvements in Roller Grinding-Mills, of which the following is a specification.

Grinding mills are commonly constructed at the present day with rolls having smooth surfaces, and with scrapers and brushes to remove the adhering material from the rolls.

In practice it is found that for various reasons, under the different conditions encountered, the scrapers fail to give satisfaction. To avoid the usual troubles I make use of a scraper of leather sustained by adjusting devices as hereinafter explained; and in order to admit of the scraper being applied conveniently to existing mills I construct the support so that it may be lengthened and shortened to suit the width of different mills.

In the accompanying drawings,—Figure 1 is a vertical cross-section of a pair of rolls and my scrapers thereunder. Fig. 2 is an elevation of the same. Figs. 3 and 4 are views showing details of the scraper supports.

A A, represent the grinding rolls which may be constructed, arranged, supported and driven in the ordinary manner; B B, the sides of the main frame, and C C, the scrapers lying one beneath and lengthwise of each roll.

The scraper proper consists of a narrow sheet or strip of hard leather, such as common sole leather, presented edgewise against the roll. This strip is seated in a groove in a stationary supporting bar *b*, and is confined and sustained therein by a thin and flexible underlying plate *c*, and a side plate *d*, both of which are adjustable by means of set-screws *e* and *f*, seated in bar *b* as shown. By properly adjusting these screws which are distributed along the length of the bar *b*, the leather may be set snugly against the roll at every point in its length, and compressed laterally to have more or less elasticity as demanded. By long continued practical tests I have demonstrated the fact that the leather scraper will keep the surfaces of the rolls clean in grinding all classes of grain, and grain products, and in humid as well as in dry atmospheres. It will not scratch or injure the surfaces of the rolls. It will yield to a limited extent, and closely hug the roll at every point and will not, like brushes, retain the material. Unlike the customary metal blades the leather will yield or bend edgewise under the influence of the adjusting screw so that its pressure may be properly graduated at every point in its length.

The supporting bar may be continuous from end to end, and secured firmly to the frame or other rigid support in any suitable manner, as by seating its ends in plates E, such as shown in Fig. 3, bolted to the inside of the frame. When, however, it is desired to adapt the scraper for convenient attachment to existing mills, I make the bar *b* extensible so that it may be elongated and seated at its ends firmly against the inner sides of the mill frame. A good construction to this end is shown in Figs. 2 and 4, in which it will be seen that the bar *b* is divided transversely, and the two parts united by a screw *g*, by which they may be forced apart and seated at their ends firmly against the inside walls of the frame or other roll supports. To prevent the bar from springing or bending I propose when necessary to connect the two parts by a sliding splice plate *h*, seated in grooves therein. The plates *c* and *d* are continuous across the break in the bar *b*, as shown.

In practice it is found that leather, in consequence of its peculiar nature, differs in its action upon the roll from any other material now in use. When properly supported, as herein shown, it possesses sufficient rigidity to bear against the roll and remove the adhering matters without, however, scratching or otherwise injuring the surface of the roll, as a metal scraper is liable to do. As compared with a metal scraper it is also advantageous in that it is sufficiently flexible to adapt itself to the surface of the roll at every point in its length. Brushes as commonly employed are liable to become clogged and loaded with the product from the rolls, which material souring or fermenting, frequently injures the material with which it may be mixed.

I do not claim broadly the combination of an elastic scraper with a roll, nor broadly the substitution of a leather scraper for scrapers of other material, but

What I do claim is,—

1. As an improvement in roller grinding mills, the combination of the smooth grinding

roll, the fixed channeled support C, the flexible metal strip *c*, therein, the leather strip seated in said support against the flexible strip and bearing edgewise against the roll, and the series of adjusting screws beneath the strip at different points in its length as shown: whereby the leather is sustained and held adjustably in contact with the roll.

2. In a roller grinding mill, and in combination with the smooth grinding roll, the leather strip presented edgewise against the roll, the fixed grooved support C, the flexible strips *c*, *d*, therein bearing beneath and against the side of the leather, and the adjusting screws *e*, *f*, applied as shown: whereby the leather is compressed, sustained and held adjustably in contact with the roll.

3. The scraper attachment for roller mills consisting of the channeled extensible frame with its adjusting screw *g*, the leather strip, its flexible sustaining strip, and the screws *e*.

4. A scraper for a roller mill, having a clamped non-metallic scraper strip, a metallic follower bar below said strip, and set screws to vertically adjust the follower-bar, independently of the clamping device.

In testimony whereof I hereunto set my hand, this 17th day of November, 1886, in the presence of two attesting witnesses.

DANIEL ALBERT SCALLEN.

Witnesses:
W. B. PETER,
T. H. HUNT, Jr.