(No Model.)

C. GRUNDER & J. H. MOYER.

ROLL MADE FROM LEATHER DISKS.

No. 289,910. Patented Dec. 11, 1883.

Fig. 1.

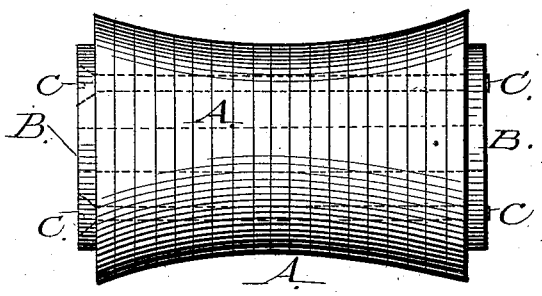


Fig. 2.

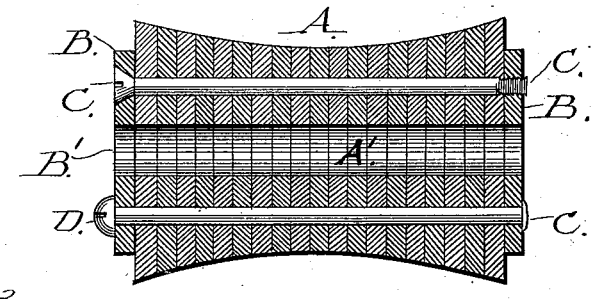


Fig. 3.

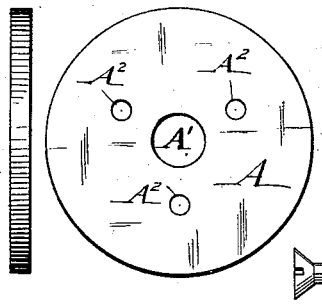


Fig. 5.

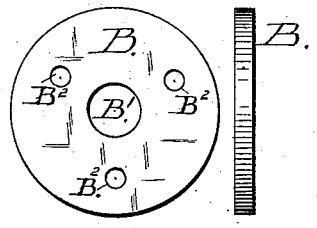
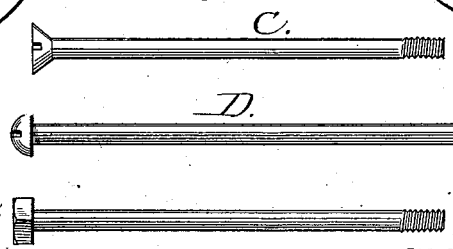


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHRISTIAN GRUNDER AND JOSEPH H. MOYER, OF READING, PA.

ROLL MADE FROM LEATHER DISKS.

SPECIFICATION forming part of Letters Patent No. 289,910, dated December 11, 1883.

Application filed September 15, 1883. (No model.)

To all whom it may concern:

Be it known that we, CHRISTIAN GRUNDER and JOSEPH H. MOYER, citizens of the United States, residing at the city of Reading, county of Berks, and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Rolls, of which the following is a specification.

This improvement relates more particularly to the construction of rolls, in which it is desired with great hardness of surface to still retain a certain amount of elasticity, and that in use will not abrade or bruise the article rolled on or rolling upon the same.

The object more particularly in view in this our invention is to construct a roller suitable for use in our thill-loop patent, No. 279,151, of June 12, 1883, we having ascertained practically that it is the only roller adapted thereto.

The drawings forming a part of this specification are so fully detailed that very little explanation is necessary to enable an expert to construct the roll.

Like letters indicate like parts throughout the drawings.

Figure 1 is a front elevation of a roll complete. Fig. 2 is a longitudinal sectional elevation of the same, showing alternative modes of securing the roll. Fig. 3 is a plan and side elevation of one of the disks of which the roll is composed. Fig. 4 represents the bolts, screws, or rivets for securing the roll. Fig. 5 represents the end washers in front and side elevation.

A represents the roll, composed of a series of disks cut from leather or an equivalent material; A′, a hole central to the disks, forming, when combined with each other, the wearing-surface upon the pin or shaft of the roll when the same revolves independent of the pin or shaft.

A^2 A^2 A^2 are the clamping-holes for the reception of the bolts, screws C, or riveting-pins D. The disks are cut and punched in a suitable press—lever, screw, or hydraulic—the central hole, A′, and the clamping-holes A^2 being equidistant from each other, so that in assembling there need be no skill exercised to match the holes with each other.

B B are the end clamps or washers, having holes B′ B^2 B^2 B^2, corresponding with the holes A′ A^2 A^2 A^2 of the leather disks.

C are clamping-screws, and D are clamping-rivets.

The construction of the roll is as follows, the description referring to a roll, as shown, to be used for a thill-loop: All scrap leather is available if large enough to form a disk, and the pieces are placed under the cutting and punching presses, and by one operation are delivered complete, as shown in Fig. 3. The washers or clamps B are similarly produced.

The next operation is the assembling, which is as follows: A plate adapted to the press has a pin for the central hole, A′ and B′, and at the proper distance therefrom a pin for the holes A^2 and B^2, the pins being in height above the plate sufficient to produce a roll of the desired length, due allowance being made for the shortening due to compression. Thus prepared, a washer B is first placed on the plate over the pins. Disk after disk of leather is then placed upon each other until the proper height is attained. Another washer being placed completes the pile, which is transferred under a platen in connection with a screw, lever, or hydraulic press, and so arranged that it shall bear upon the washer B between the holes B^2 and leave the same clear. The platen is then brought down with such pressure as will insure the closest contact between the several disks, and, while held in said position, in all the holes left clear the screws C are dropped through from the top washer, and the screw-driver heads turned until their threaded ends engage with the threaded holes of the lower washer; or, bolts or rivets being used, the same are thrust up from below and the nuts screwed up, or, the rivet-head being supported by a tool from below, the top end is riveted over the upper washer. Either style perfectly secures the disks. The pressure is now withdrawn, the roll released, and the hole occupied by the pin of the plate is filled out similar to the other. It is then put upon a mandrel and turned to the desired concave form in a lathe. The disks may be soaked in water or grease previous to assembling, according to the purpose for which the roll is to be used. We prefer for the purpose of thill-loop rollers to put them together dry.

We have, for the purpose described, tested metal, vulcanite, rubber, and wood, and found

all to be inferior to a roll of leather constructed as shown.

We are aware that calender-rolls have been constructed of paper disks somewhat in the manner we have herein shown, and that roller-blocks for stirrup-straps have been constructed of leather disks loosely strung together upon a central bolt. In this case, however, it was not intended that the block should revolve, its functional duty being to separate the ends of the stirrup and adjust the same to the width of strap to be used therewith. As to the calender-rolls, their use is not for and would be unsuited to a purpose analogous to ours.

When the roller is secured to the shaft and revolves with the same, keyways would be provided in the washers B and key-seats in the shaft. A key in combination therewith would then retain the roller in place.

We make no special claim to any machinery to be used for the purpose of getting out the disks and washers, or for compressing the same, as it is evident that many ways of equal convenience with those suggested may be used for the purpose.

The rolls may be formed upon a hollow metal spindle having an integral collar at one end, the opposite end of the spindle threaded to interlock with a loose threaded collar, which, when the disks are in place, is screwed down upon the same until the desired length and compression is produced. We prefer, however, the plan shown, as cheaper in production and equally as good for service.

Rolls constructed as described are adapted to the hardest service, being almost indestructible.

Having shown our invention, its construction, and use, we desire to secure by Letters Patent the following claim thereon:

A concave roll composed of suitably-prepared leather disks secured between washers upon a shaft by two or more bolts or screws, as shown, and for the purpose described.

CHRISTIAN GRUNDER.
JOSEPH H. MOYER.

Witnesses:
THOMAS LANGAN,
JOHN HIPPLE.