M. H. HOFFMAN.

LADDER.

APPLICATION FILED SEPT. 18, 1913.

1,093,419. Patented Apr. 14, 1914.

Fig. 1.

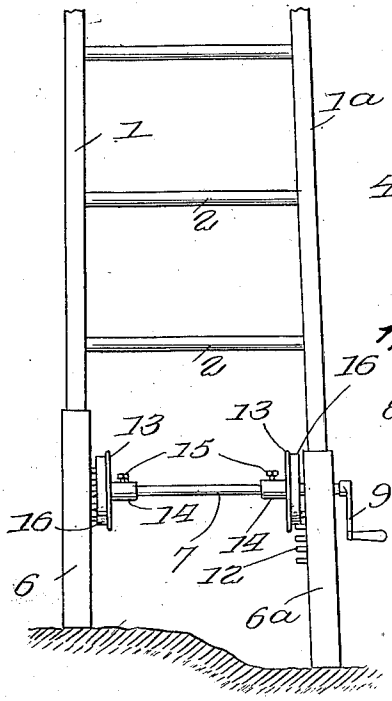


Fig. 2.

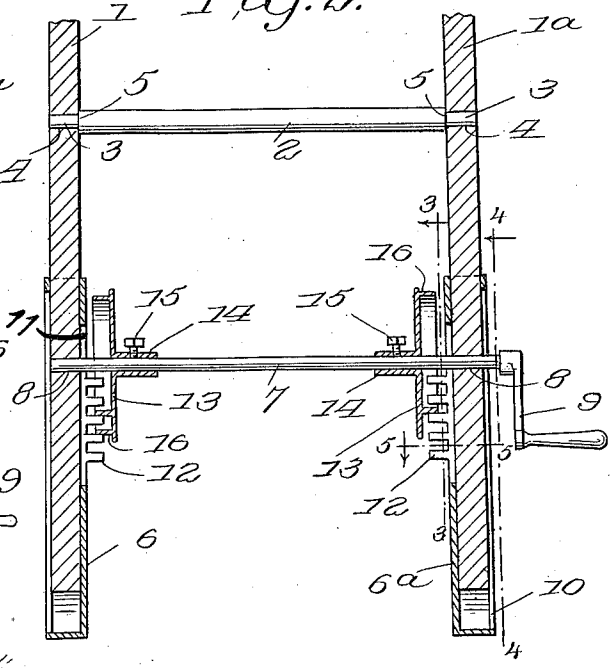


Fig. 3.

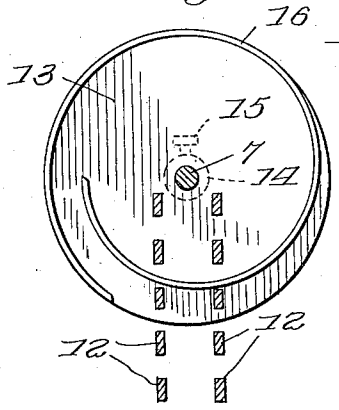


Fig. 4.

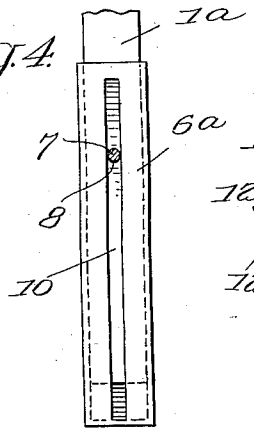
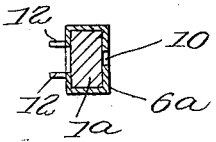


Fig. 5.



WITNESSES

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LADDER.

1,093,419. Specification of Letters Patent. Patented Apr. 14, 1914.

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To all whom it may concern:

Be it known that I, MARTIN H. HOFFMAN, a citizen of the United States, and a resident of Masontown, county of Preston, and State of West Virginia, have made certain new and useful Improvements in Ladders, of which the following is a specification.

My invention is an improvement in ladders, and has for its object to provide a ladder especially adapted for use on uneven ground, and wherein each of the stiles is provided at its lower end with an extension, capable of being moved longitudinally with respect to the stile, to lengthen the stile, and wherein mechanism is provided for operating the extensions simultaneously in opposite directions.

In the drawings: Figure 1 is a front view of the lower end of a ladder constructed in accordance with the improvement, Fig. 2 is a transverse vertical section, and Figs. 3, 4 and 5 are sections on the lines 3—3, 4—4, and 5—5, respectively, of Fig. 2, looking in the direction of the arrows adjacent to the several lines.

The present embodiment of the invention is shown in connection with a ladder comprising stiles 1 and 1ª, the stiles being connected at spaced intervals by rungs 2. As shown in the present instance, each of the rungs 2 has its ends reduced, as shown at 3, to engage registering openings 4 in the respective stiles, and the shoulder 5 formed between the reduced portions and the bodies of the rungs engage the inner faces of the stiles to space the stiles apart. It is obvious, however, that the improvement might be applied with equal facility to any form or construction of ladder. Each of the stiles is provided at its lower end with an extension 6, and 6ª respectively, the said extensions being in the form of hollow casings, each having one end open, and adapted to fit over the lower end of the stile, as shown. The lowermost rung of the ladder is formed by a shaft 7, which is journaled transversely of the stiles and parallel with the rungs, in openings 8 in the stiles, and one end of the said shaft is extended beyond the stile 1ª, and is provided with a crank 9 for convenience in rotating the shaft.

Each of the extensions 6 and 6ª is provided in its outer side wall with a longitudinally extending slot 10, the said slot extending from near the upper end of the extension to the lower end, for receiving the end of the shaft 7. On its inner face each extension is also provided on its inner side with a longitudinally extending slot 11, of greater width than the slot 10, but of less length, and at each side of the said slot and intermediate the ends thereof, each extension is provided with a series of teeth 12. The teeth 12 do not extend the entire length of the slot, and the teeth of the series of each extension register, as shown in Fig. 3. A disk 13 is arranged on the shaft adjacent to each stile, each disk having a hub 14 slidable on the shaft, and held in adjusted position by means of a set screw 15. Each of the disks is provided on its outer face, that is on the face adjacent to the extension, with a spirally arranged rib 16, the ends of the said rib overlapping, as shown in Fig. 3. The ribs 16 of the several disks are adapted to engage the teeth of the series 12, to raise or lower the extensions. The ribs of the disks 13 are oppositely arranged, so that when the shaft 7 is rotated, one of the extensions will be moved upward and the other downward, that is the said extensions will be moved in opposite directions. When the ladder is to be used on uneven ground the shaft is rotated until the extensions engage the uneven surface in such manner as to hold the ladder upright. A few turns of the shaft in either direction is sufficient for the purpose, and the more weight there is upon the ladder the more tightly the extensions are held from movement. No locking mechanism other than the engagement between the ribs and the teeth 12 is necessary. The extensions may be applied to any form of ladder, and they may be easily disengaged and removed from the ladder when desired, merely by loosening the set screws 15, moving the disks inward, to disengage the ribs 16 from the teeth 12. The shaft may be then withdrawn, after which the extensions are removed.

I claim:

The combination with the ladder, of an

extension at the lower end of each stile and slidably connected with the stiles, each extension having a longitudinal series of teeth, a shaft journaled transversely of the stiles, and a rib arranged spirally of the shaft adjacent to each extension and rigidly connected with the shaft, each rib engaging the adjacent series of teeth and the said ribs being oppositely arranged to simultaneously move the extensions in opposite directions when the shaft is rotated.

MARTIN HENRY HOFFMAN.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."