T. S. Angel,

Making Fence Pickets,

No. 80,050, Patented July 21, 1868.

Fig. 1.

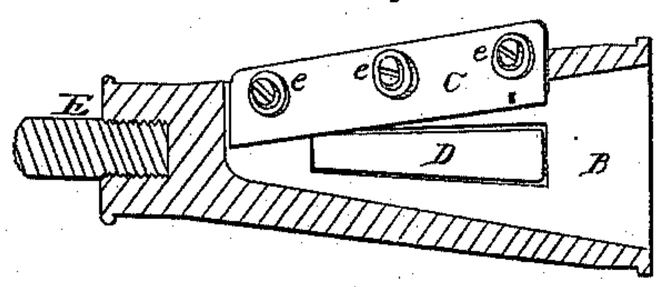
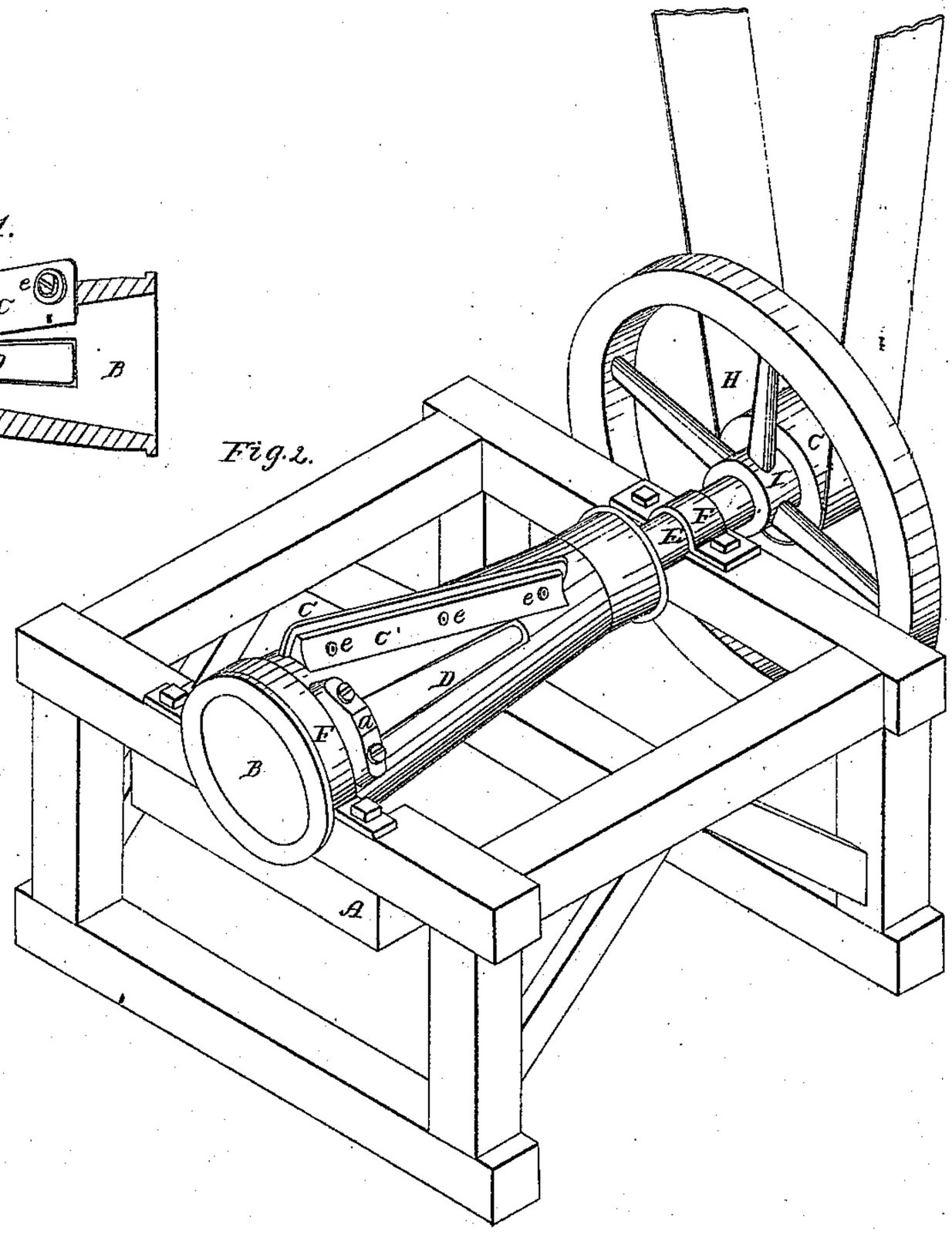


Fig. 2.



Witnesses.
L. J. Dorwin.
Jno. M. Sigourney.

Inventor.
T. S. Angel.

United States Patent Office.

TRUMAN S. ANGEL, OF WATERTOWN, NEW YORK.

Letters Patent No. 80,050, *dated July* 21, 1868.

IMPROVEMENT IN MACHINE FOR SHARPENING HOP-POLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, TRUMAN S. ANGEL, of Watertown, in the county of Jefferson, and State of New York, have invented an Improvement in the Construction of a Stake and Pole-Sharpener; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction of said sharpener, and which is so constructed that it can be used as a hand-implement, or it can be propelled by horse, steam, or water-power.

To enable others skilled in the art to make and use my said invention, I will proceed to describe its construction and operation.

My sharpener resembles, in its general form, the well-known pencil-sharpener, and my invention relates to improvements on that implement, I hereby disclaiming any claim of invention in the construction of said pencil-sharpener.

Figure 1 is a longitudinal section of my sharpener, and

Figure 2 a persective view, showing the sharpener mounted upon an appropriate frame, with driving-pulley, belt, and balance-wheel.

The sharpener is a hollow frustum of a cone, terminating at its smaller end in a solid cylinder, which cylinder has a diameter equal to that of the smaller end of the frustum, and a length about one-fourth of the frustum. *c c* is a knife, set diagonally to the longitudinal axis of the sharpener, and is affixed to the rib *c'* by the screws *e e e*. The knife passes through a slot, cut through the side of the sharpener to the interior, B B, of the sharpener, the knife having a sufficient width to reach the stake or pole to be sharpened. The knife has, where the screws pass through it, a corresponding number of slots, in the right direction and of the proper length to permit the said knife to be adjusted inwardly and outwardly the required distance. The knife is also set in such a manner that it will give a drawing or shaving cut with the grain of the stakes and poles, and the slot through which it passes is at the proper diagonal to the longitudinal axis of the sharpener. The knife can be removed for the purpose of sharpening and repairing. As the stakes and poles have different diameters, varying, say, from two to four inches, and as it is required that they be sharpened for a length of about fourteen inches, it is obvious that the inclination of the knife must be varied for these different diameters, so that the stakes and poles may be sharpened for the length mentioned. To meet this requirement, either end of the knife will be adjusted further in or out than it is shown in fig. 1. This will of course make a change in the bevel in the cut, the smallest poles having the flattest bevel, and the largest the reverse. The stakes and poles will be sorted as to sizes, and when the knife is adjusted for a particular size, all of that size will be sharpened, then the adjustment will be changed for another size, and so on, through all the sizes.

To prevent the sticking and jamming which would arise from the friction between the inner side of the sharpener and the stakes and poles, the sharpener is provided with three conical friction-rollers, equidistant from each other, one of which, D D, is shown in both figures. These rollers are set in slots cut in the sides of the sharpener, in the line of its longitudinal axis, which slots extend entirely through such side. The rollers are provided with journals at each end, on which they revolve, one of which journals has its bearing in the side of the sharpener, and the other also, but the latter is held in position by the cap *a'*. The rollers are set in such a manner that their inner surface projects beyond the inner surface of the sharpener, and so that these surfaces are parallel to each other. A conical form is given to the rollers, and they are set with their larger ends towards the larger end of the sharpener, in order to secure a uniformity of speed to the surfaces of the rollers and the inner surface of the sharpener. If the rollers were cylindrical, it is plain that the difference in speed between the rollers and sharpener would cause great friction, and a consequent jamming in the operation of sharpening stakes and poles.

When the sharpener is used as a hand-implement, it will be mounted on the frame, A, and a crank attached to the arbor E. When propelled by power, the driving-pulley G and the balance-wheel I will be attached to

said arbor, and the power transmitted by the belt H, the straps F F holding the sharpener in its bearings. When operated in either way, the stakes and poles are grappled to a sliding frame, moving on a table so constructed that the ends of the stakes and poles will enter the sharpener at B B, and when sharpened, said stakes and poles will be withdrawn by reversing the movement of the sliding frame.

What I claim as my invention, and desire to secure by Letters Patent, is—

A tool for sharpening sticks, stakes, and poles, consisting of a hollow frustum of a cone, having inserted longitudinally in its shell conical rollers, and an adjustible oblique-cutting knife, all constructed and arranged to operate substantially as described.

Dated at Watertown, New York, March 17, 1868.

Witnesses:
T. BAKER,
JNO. M. SIGOURNEY.

T. S. ANGEL.