

T. GRAHAM.
Swivel for Temper Screws.

No. 101,726.

Patented April 12, 1870.

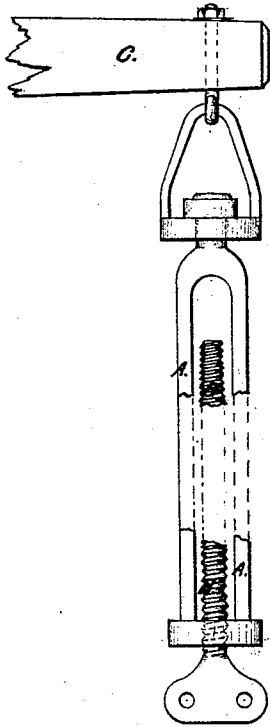


Fig. 1.

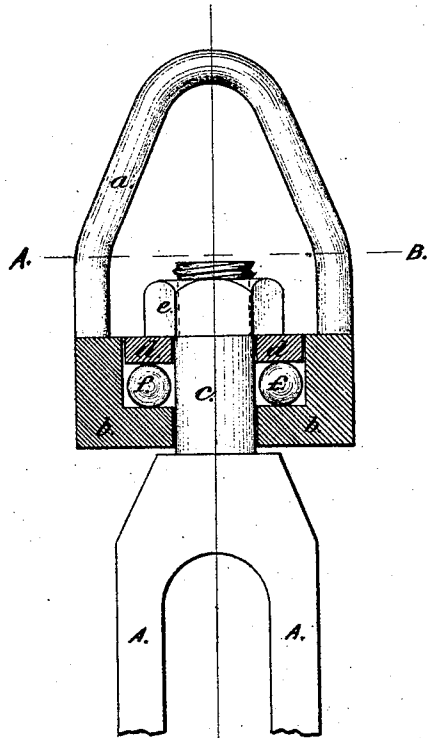


Fig. 2.

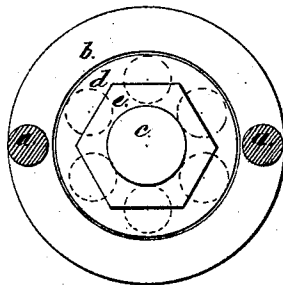


Fig. 3.

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THOMAS GRAHAM, OF SHAMBURG, PENNSYLVANIA.

Letters Patent No. 101,726, dated April 12, 1870.

IMPROVEMENT IN SWIVELS FOR TEMPER-SCREWS.

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, THOMAS GRAHAM, of Shamburg, in the county of Venango and State of Pennsylvania, have invented a certain new and improved Swivel for Temper-screws, &c., to be used in drilling artesian wells; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings making a part of this specification.

Similar letters indicate similar parts in all the views.

In the drawings—

Figure 1 represents a temper-screw, of the kind ordinarily used, and provided with the usual swivel at its upper end.

In drilling artesian wells, the drilling-tools are suspended from the working-beam in the manner shown in fig. 1, the temper-screw (consisting mainly of the bars A A, screw B, and swivel) is attached to a hook upon the outer end of the working-beam C, and the cable, carrying the tools, is attached to the lower end of said temper-screw.

As the drilling progresses, the bit is turned by revolving the entire temper-screw upon the swivel shown at its upper end, and the tools are lowered slowly by means of the screw.

The cable and tools usually weigh from one to two thousand pounds, and a great amount of friction and wear occurs at the swivel, under the almost constant motion of the tools for months at a time.

The object of my invention is to produce a swivel which shall be as free from friction and consequent wear as possible, while it shall be simple, not liable to get out of order, and produced at a reasonable cost.

Figure 2 is a vertical section of my improved swivel, and

Figure 3, a horizontal section taken on line A B.

a is the loop or hook, which is attached to the hook upon the working-beam, and upon the lower end of which a cylindrical box, *b*, is provided. A hole is drilled through the bottom of this box for the reception of the upper end or spindle *c* of the bars A A, which are forged and turned into the form shown. Said spindle is then provided with an annular cap, *d*,

fitting loosely within the box *b*, and secured to the spindle by means of the nut *e*.

I also provide and insert three or more metal balls or rolls *f f* between the parallel surfaces of the bottom of the box *b* and cap *d*.

When the whole is put together, as shown in fig. 2, it will be seen that any weight suspended from the temper-screw is born by or upon the balls *f f*, the cap *d*, and box *b*.

In most cases I prefer to make said balls and the wearing-surfaces of the box and cap of steel, or of case-hardened metal, but in light work this may not be necessary.

The balls *f f* present so little wearing-surface that the usual strain, wear, and friction are almost entirely obviated, and the tools may be turned much more easily than by the use of the ordinary swivel shown in fig. 1.

My peculiar arrangement of swivel may be applied and used with equal advantage in all cases where it becomes necessary to suspend and revolve heavy weights, as in the cranes used for carrying and transferring heavy articles in founderies, machine-shops, stone-yards, &c., in which case a hook or loop may be forged upon the lower end of the spindle *c*, or the whole swivel may be inverted, if desirable, for any reason.

Having thus described my improvements,

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

1. The described arrangement and combination of the hook or loop *a*, box *b*, spindle *c*, cap *d*, and balls *f f*, the whole forming a swivel, operating substantially as set forth.

2. The combination of the within-described swivel with the bars A A and screw B, the whole forming a temper-screw complete, operating substantially as and for the purposes set forth.

THOMAS GRAHAM.

Witnesses:

WM. H. CURRIL,
WM. H. MCKENZIE.