2 Sheets—Sheet 1.

L. CHAPMAN.

METAL HAMMERING-MACHINE.

No. 172,246. Patented Jan. 18, 1876.

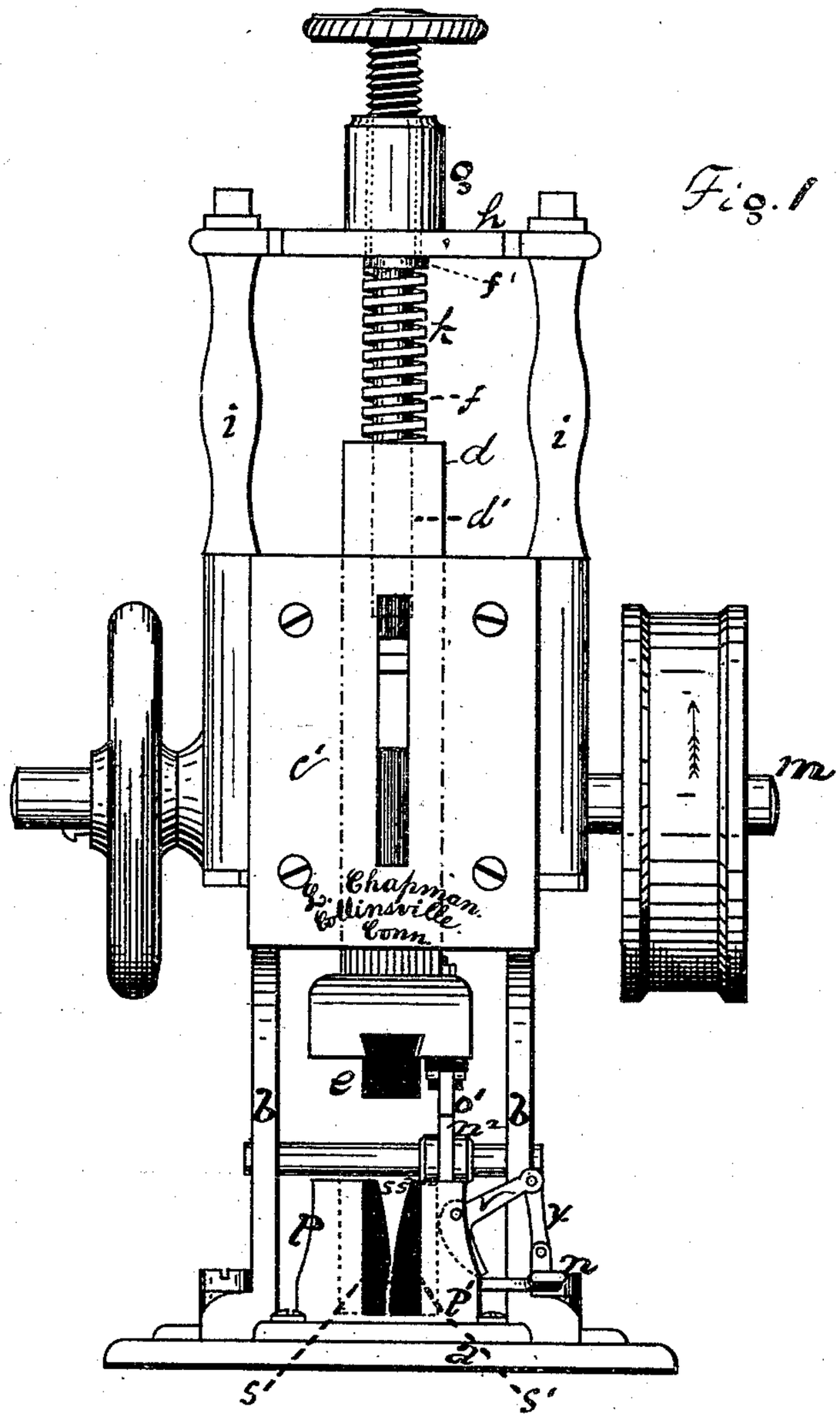

Fig. 1

Witnesses.

E. F. Horton.

Hamilton Pruman

Inventor:

Luke Chapman

By W. E. Simonds Atty.

2 Sheets—Sheet 2.

L. CHAPMAN.

METAL HAMMERING-MACHINE.

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Fig. 2

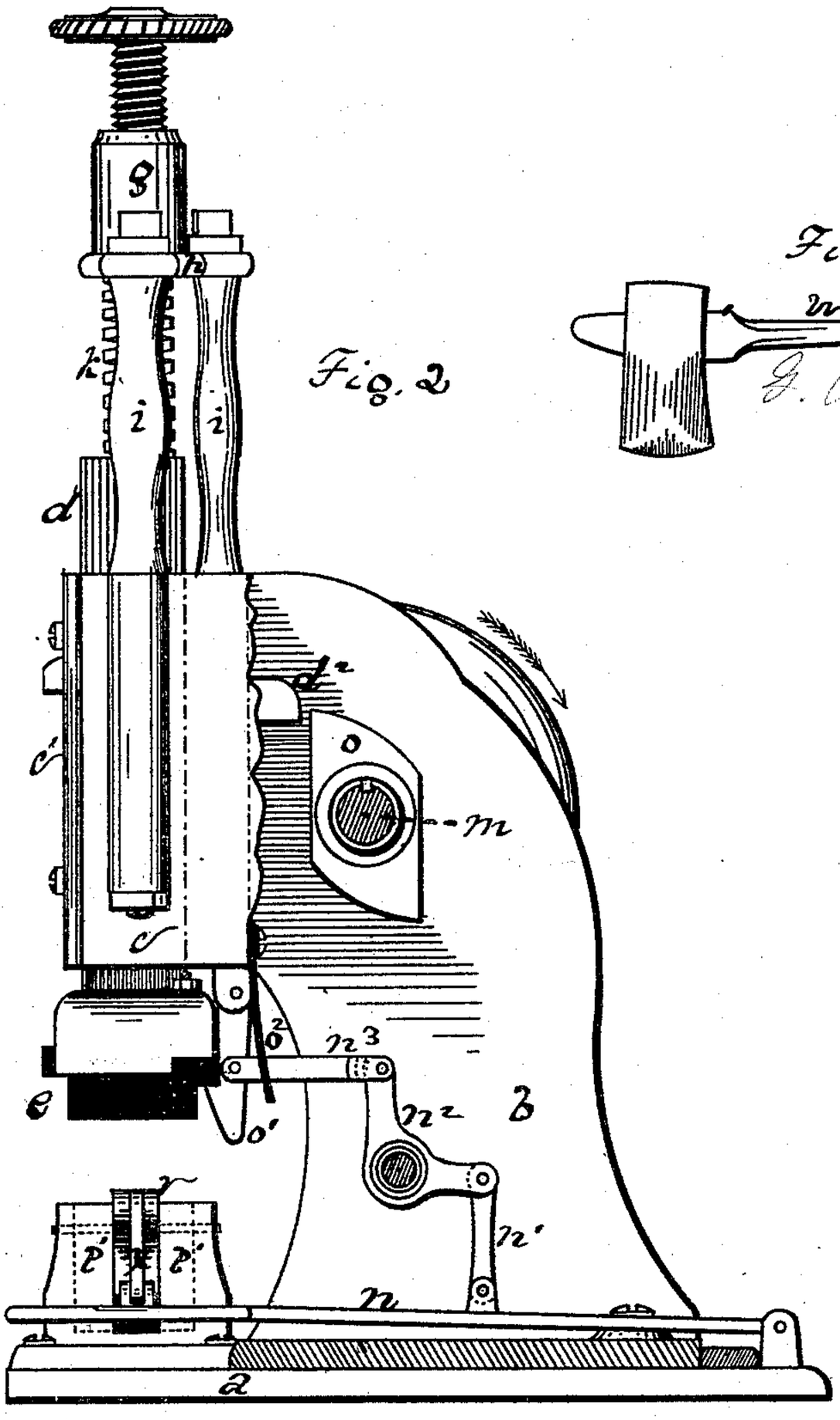

Fig. 3

Witnesses.

E. L. Horton.

Harrison B. Tuttman

Inventor.

Luke Chapman

By W. E. Simonds Atty.

UNITED STATES PATENT OFFICE.

LUKE CHAPMAN, OF COLLINSVILLE, CONNECTICUT, ASSIGNOR TO THE COLLINS COMPANY, OF SAME PLACE.

IMPROVEMENT IN METAL-HAMMERING MACHINES.

Specification forming part of Letters Patent No. **172,246**, dated January 18, 1876; application filed February 24, 1875.

CASE M.

To all whom it may concern:

Be it known that I, LUKE CHAPMAN, of Collinsville, in the county of Hartford and State of Connecticut, have invented new and useful Improvements pertaining to Hammering-Machines, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a front-elevation view of a machine embodying my said improvements. Fig. 2 is a right-side elevation view of the same machine, with one of the side standards—that next to the observer—broken away, so as to expose to view the mechanism between the two standards. Fig. 3 is a side view of an ax-blank with an eye-pin inserted in its eye, as used in the machine.

This machine, when fitted with the dies shown in the drawings, and hereinafter described, is intended solely for hammer-finishing the heads of axes in the process of their manufacture, a work heretofore mainly done by hand. When fitted with other and appropriate dies, it can be used for hammer-finishing the sides and heads of axes, hatchets, and other similar tools and articles.

The letter *a* indicates the bed or base of metal, from which rise the two standards, *b*, supporting the guide-block *c*, the front of which is grooved or mortised vertically, so as to contain the square-sided hammer-stock, *d*, which is kept in place by the front plate *c'* screwed to the guide-block. This hammer-stock has, when in use, an up-and-down motion. It bears at its lower end the hammer-head *e*. A hole, preferably round, is drilled into the upper end of the hammer-stock, indicated in Fig. 1 by dotted lines *d'*, and into this hole projects the rod *f*, screw-threaded at its upper end, and then running through the stationary nut *g*, which is fast upon the cross-piece *h*, which is supported by pillars *i i i* rising from the guide-block. On rod *f* is spring *k*, aiding the downward throw of the hammer-stock. The upper end of this spring bears against a shoulder, *f'*, on screw-rod *f*, so that, by the running upward and downward of rod *f*, the tension of the spring upon the hammer-stock can be diminished or increased at pleasure.

Hammer-stocks have been made previous to this invention, similar to this one, in so far as this—the rod *f* was rigidly fixed to the upper end of the hammer-stock, and moved with it; but my present construction has important advantages, among which are, first: in the old construction the rod *f* was lifted so high when the hammer rose that the machine could not be used in a room of the ordinary height, which is not the case in my machine; second, in the old form and construction the higher the hammer rose the less surely was it guided, while, in this machine, the higher the hammer rises the more surely is it guided; third, this machine is not intended for giving dull, heavy, crushing blows, but for giving light and rapid blows.

A certain size of the hammer-stock is absolutely requisite to give the hammer-head the proper guidance and steadiness. When you add to the weight necessarily entailed by such a size the weight of a piston or guide-rod above it, the hammer has too much inertia to be readily lifted by a quick movement, and too much momentum, when put in motion upward, to have that motion readily reversed. I remedy this difficulty not only by taking away the weight of the guide-rod, but by taking away the metal which would otherwise fill the hole into which the rod plays, keeping the sectional size of the hammer-stock the same as before, or making it even larger, and, at the same time, so lessening its weight that it can be started upward with a quick motion with perfect safety, and so that the spring made use of will overcome the upward momentum of the hammer-stock with ease.

The letter *m* indicates the main shaft, with the balance-wheel on one end and power-pulley on the other. On this shaft is the cam o^1, which, acting on the lug d^2, raises the hammer-stock, which is held thus raised, when allowed, by the catch-pawl *o'* pivoted underneath the guide-block and pressed upon, toward the front, by the spring o^2.

When it is desired to let the hammer fall, the operator presses down with his foot upon the lever *n*, which operates the catch-pawl *o'* through the medium of connecting-rod n^1, bell-

crank lever n^2, and connecting-rod n^3, and as long as the lever n is kept down, the hammer will continue to rise and fall. The letters $p\,p'$ denote two standards rising from the base, forming a hollow anvil-block, in which are placed the two dies, $s\,s'$, the faces of which fit to the two sides of the ax or other tool to be manipulated. The die s is stationary, but the die s' is movable, and is pressed toward the other die when the operator presses down upon the lever n, through the medium of the connecting-rod x and the cam v. The ax to be manipulated has an eye-pin, w, inserted through its eye, and is then placed between the two dies. The operator, putting his foot upon lever n, both pinches and holds the ax, and starts the hammer by the same operation.

I claim as my invention—

The combination of the hammer-stock d, the stationary rod f, the cross-piece h, and the spring k, all constructed, arranged, and designed to operate substantially as shown and described.

LUKE CHAPMAN.

Witnesses:
WM. EDGAR SIMONDS,
GEORGE E. NOLAN.