

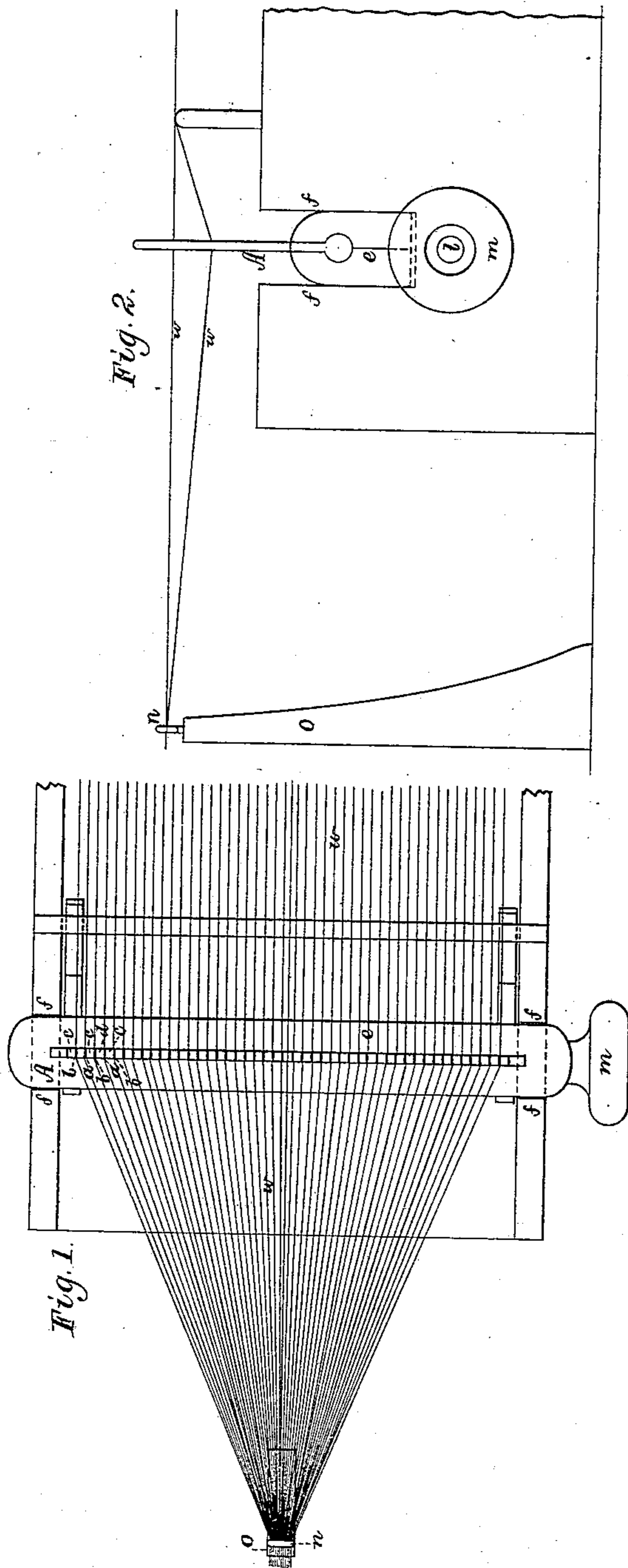
(No Model.)

W. F. WEST.

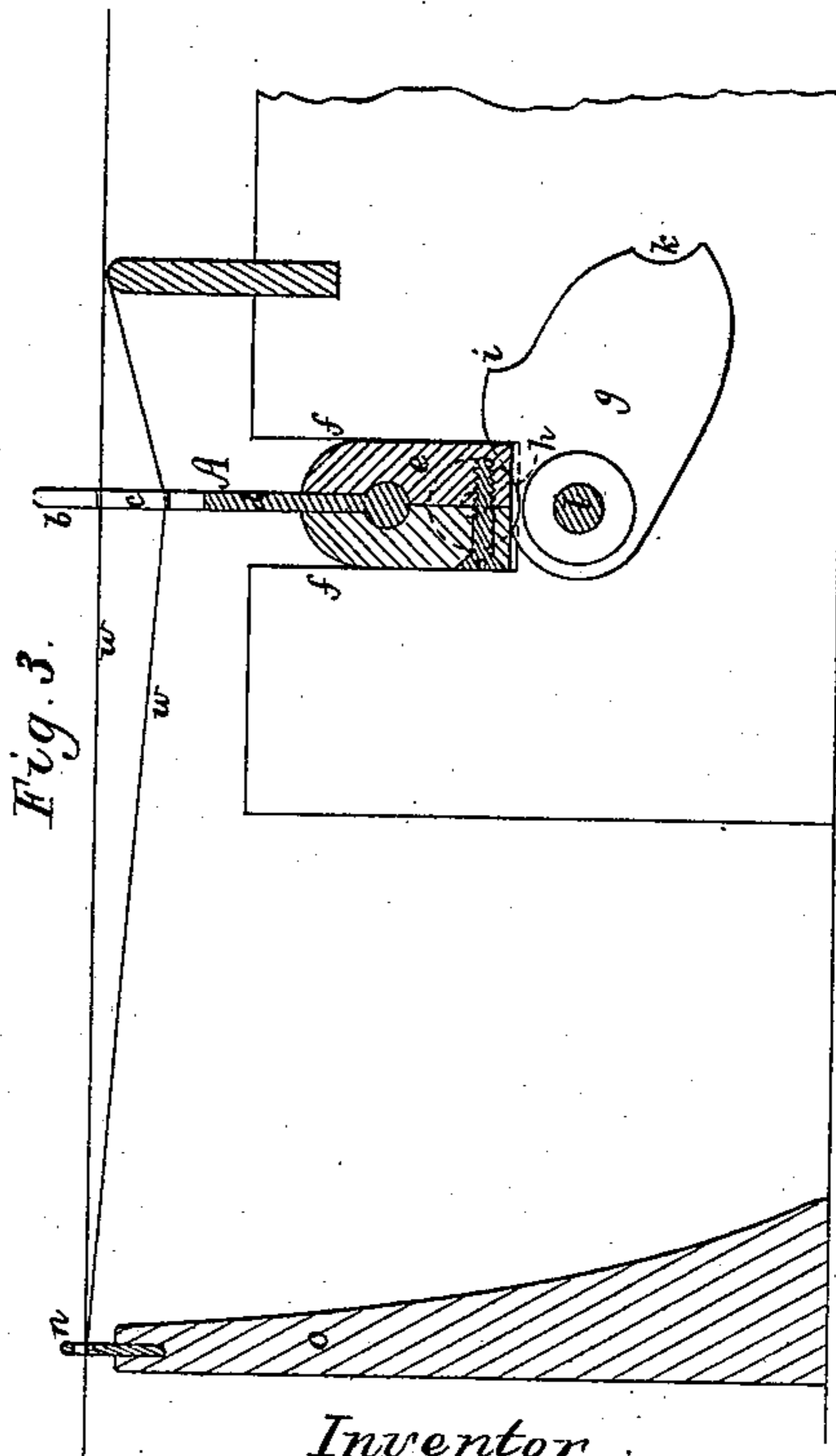
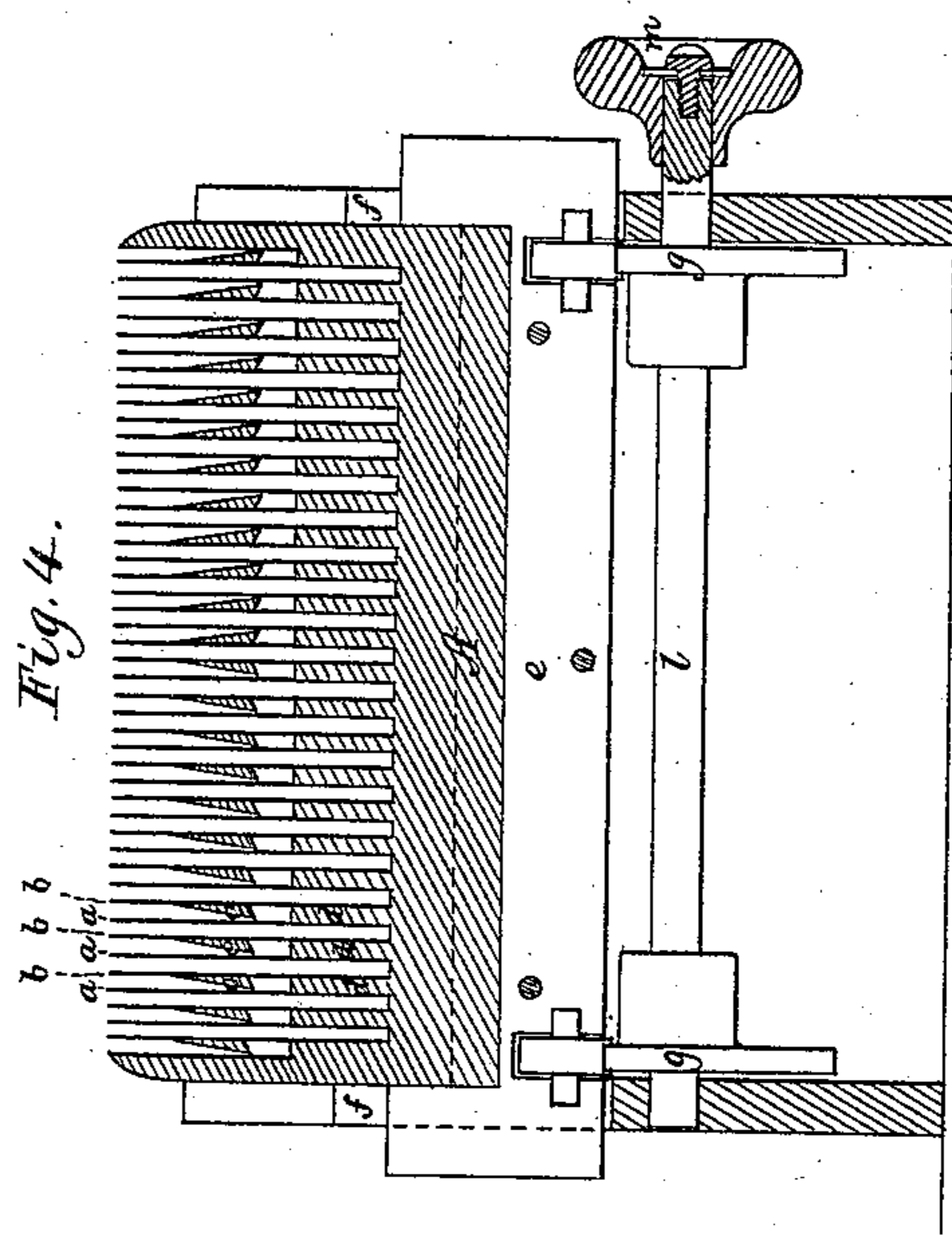
LEASE FORMING DEVICE FOR WARPING MACHINES.

No. 370,435.

Patented Sept. 27, 1887.



Witnesses:
S. N. Piper.
R. B. Torrey.



Inventor
William F. West.
by *R. H. Eddy* atty.

UNITED STATES PATENT OFFICE.

WILLIAM FRANKLIN WEST, OF WEST WARREN, MASSACHUSETTS, ASSIGNOR,
BY MESNE ASSIGNMENTS, TO HIMSELF AND JAMES W. BROWN, OF SAME
PLACE.

LEASE-FORMING DEVICE FOR WARPING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 370,435, dated September 27, 1887.

Application filed May 14, 1887. Serial No. 238,199. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FRANKLIN WEST, of West Warren, in the county of Worcester, of the Commonwealth of Massachusetts, have invented a new and useful Improvement in Lease-Forming Devices for Warping-Machines; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of a portion of a machine embodying my invention, the nature of which is defined in the claim hereinafter presented. The plane of section of Fig. 4 is through the comb, to be described.

This machine, or the comb thereof, may be used separately from or in connection with a common warper, the comb and its operative mechanism in the latter case taking the place of the plain comb of such warper.

In the drawings, A represents a comb provided with a series of dents, *a a a*, &c., and *b b b*, &c., each of which stands vertically. Each alternate dent *b* is furnished with a triangular projection, *c*, extending from it and formed in manner as represented, the series of projections for one half of the comb standing in the opposite direction to those of the other half, as shown. Below each of the said projections, and at a short distance from it, there is between the two next adjacent dents a filling-piece, *d*. The base or bar *e* of the comb is adapted to slide vertically in suitable guides, *f*, and rests on two cams, *g*, each of which is formed with offsets, as shown at *h*, *i*, and *k* in Fig. 4. These cams are fixed on a horizontal shaft, *l*, supported in proper bearings and provided at one end with a knob, *m*. The said offsets determine the positions of the comb in order for it to produce the required decussations of the warp-yarns, as hereinafter explained. By taking hold of the knob and turning it, the shaft may be turned as may be

necessary to effect the proper rise or fall of the comb. The said warp-yarns (shown at *w*) pass between the dents, and thence to a single guide, *n*, extending from a post, *o*.

By depressing the comb the warp-yarns that are immediately underneath the triangular projections will be forced by them below the remaining warp-yarns. Next a rod or bar should be inserted in the decussation thus formed and moved toward the guide *n* a sufficient distance, and a lease-string should be drawn in one direction through the decussation in advance of the bar. Next the comb should be moved upward, so as to force the yarns that are directly underneath the triangular projections down upon the tops of the filling-pieces and above the remaining yarns, so as to form a second decussation, after which a bar is to be inserted through such second decussation and moved toward the guide *n*, and the lease-string should be drawn through the said decussation in the opposite direction to what it was before introduced, and the two ends of the string should be tied together. Generally speaking, such lease-strings are to be inserted, as described, in the warp at such distances apart as may be desirable, the intervals between them being generally five hundred yards, or thereabout.

From the above it will be seen that with dispatch and to advantage, by the single comb, as hereinbefore described, decussations can be produced in the warp for the insertion of a lease-thread therein.

I claim—

The lease-comb, substantially as described, provided with the filling-pieces and the triangular projections applied to its dents, essentially in manner as represented, such comb being for use as explained.

WILLIAM FRANKLIN WEST.

Witnesses:

R. H. EDDY,
S. N. PIPER.