

(No Model.)

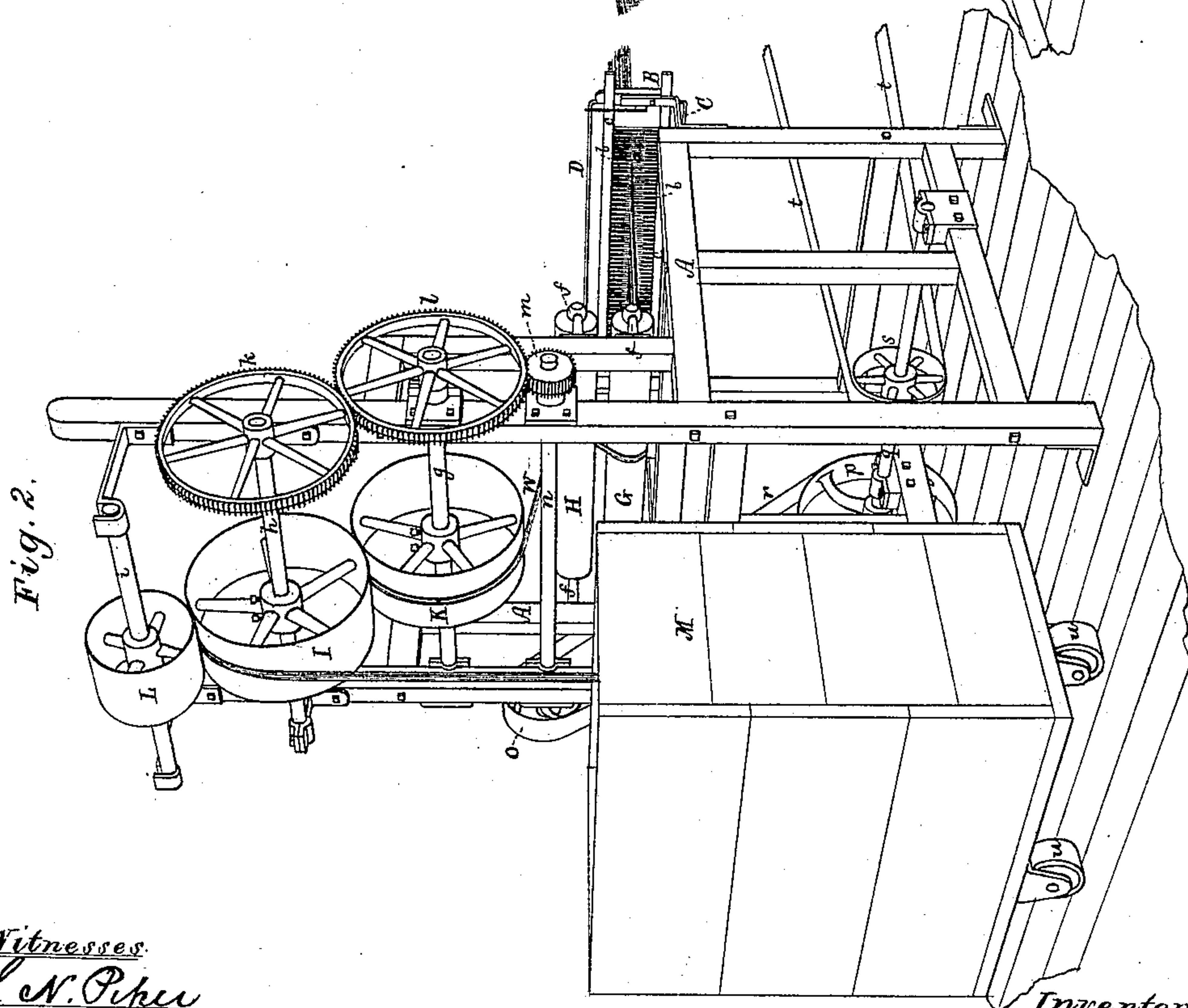
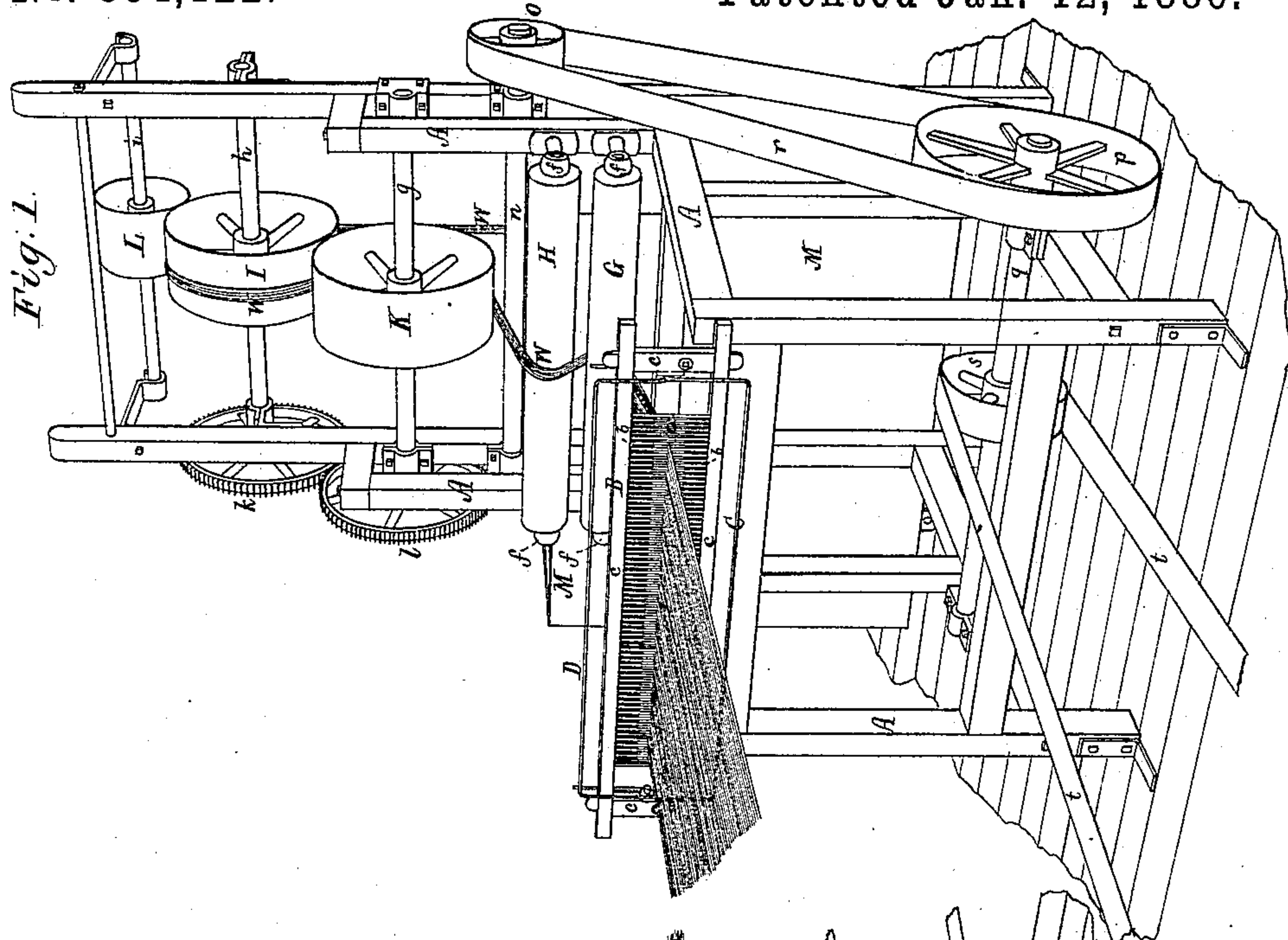
2 Sheets—Sheet 1.

I. F. LAWRY.

MACHINE FOR CONDENSING WARPS FOR BEING DYED.

No. 334,122.

Patented Jan. 12, 1886.



Witnesses.

L. N. Piper
Ernest A. Pratt

Inventor.

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2 Sheets—Sheet 2.

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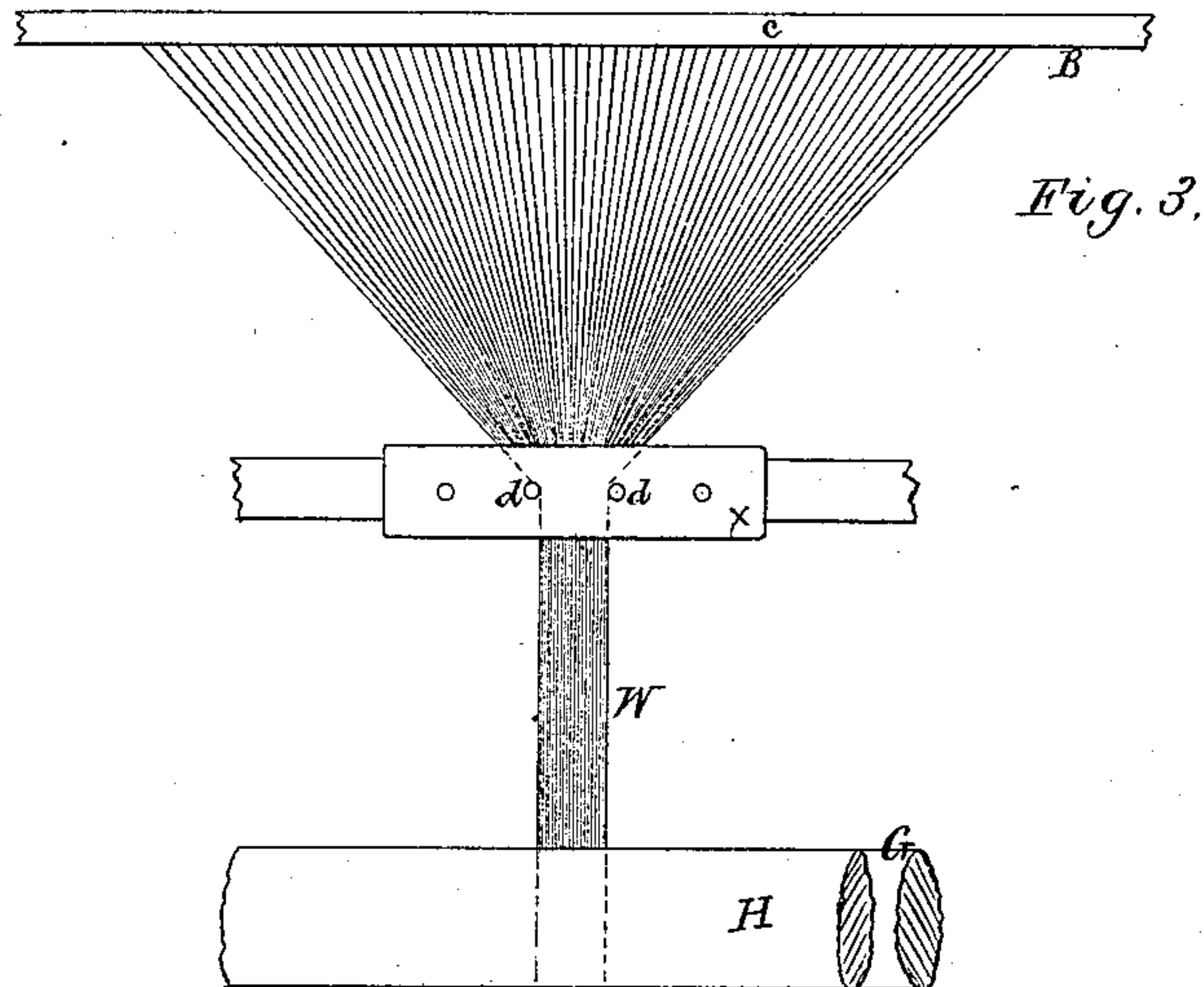


Fig. 3.

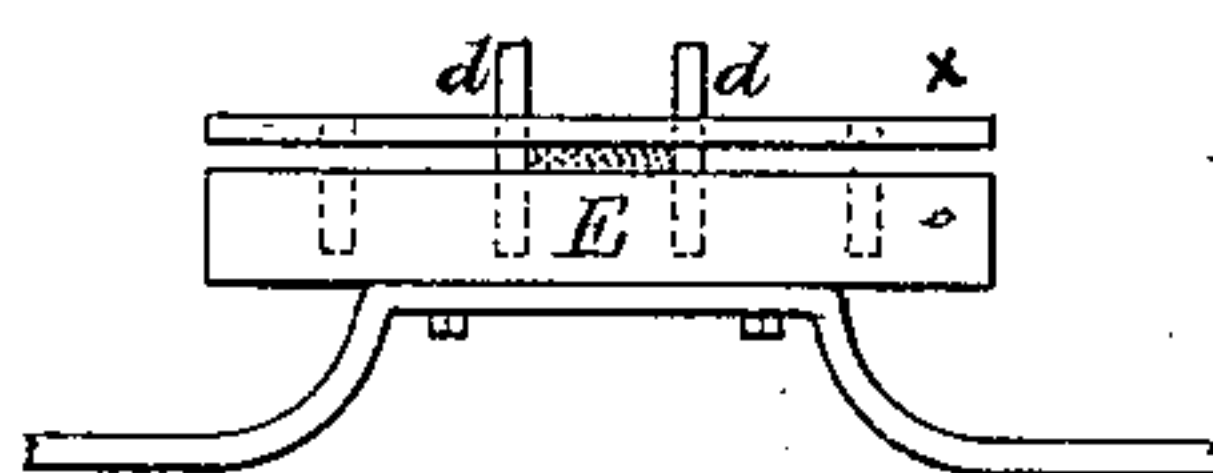


Fig. 4.

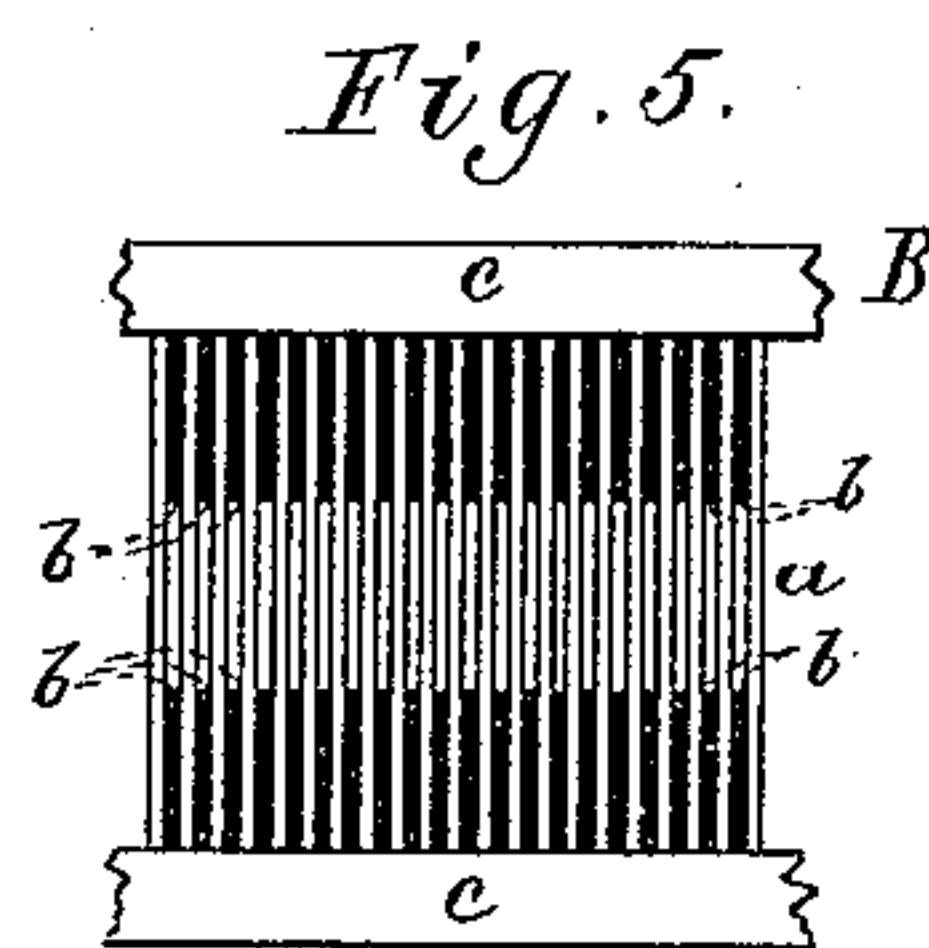


Fig. 5.

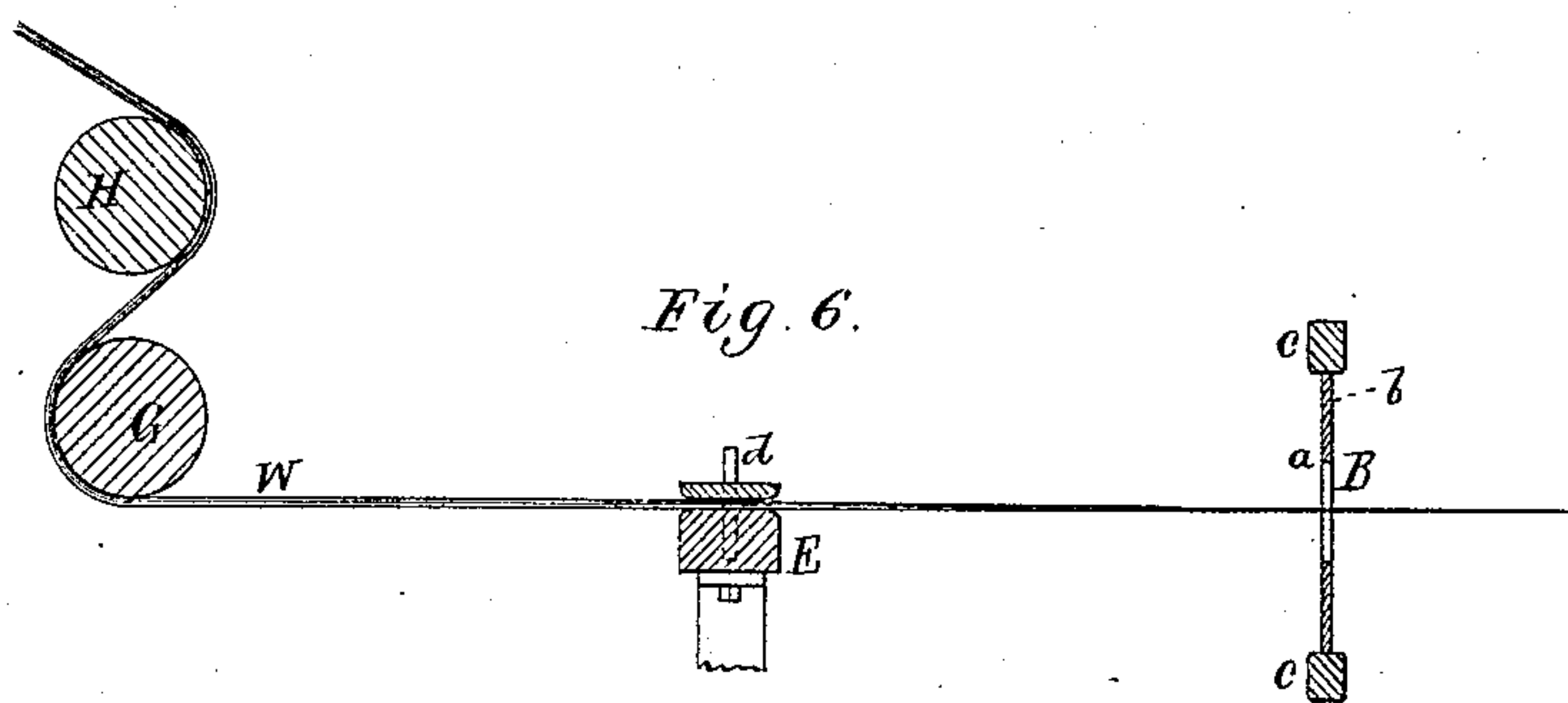


Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

IRA FRANKLIN LAWRY, OF TAUNTON, MASSACHUSETTS.

MACHINE FOR CONDENSING WARPS FOR BEING DYED.

SPECIFICATION forming part of Letters Patent No. 334,122, dated January 12, 1886.

Application filed June 12, 1885. Serial No. 163,530. (No model.)

To all whom it may concern:

Be it known that I, IRA FRANKLIN LAWRY, of Taunton, in the county of Bristol, in the Commonwealth of Massachusetts, have invented a new and useful Improvement in Machines for Condensing Warps for Being Dyed; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

10 Figures 1 and 2 are perspective views of a machine embodying my invention, one embracing the rear and the other the front end portions of such machine. Fig. 3 is a top view of the guide-bar and its pins, the reed and 15 parts of the two eveners of the machine. Fig. 4 is a front elevation of said guide-bar and its pins. An auxiliary plate arranged on the guide-bar and its pins is shown in each of Figs. 3 and 4. Fig. 5 is a side view of part of the 20 reed. Fig. 6 is a section taken transversely through the reed, the guides, and the eveners, to be described.

The machine is to be used in connection with a warper, from which the warp-yarns are to be 25 led to and through the reed of the said machine.

The nature of my invention is defined in the claim hereinafter presented.

30 In Figs. 1 and 2 of the said drawings, A denotes the frame of the machine as supporting at its rear end a reed, B. The dents *a* of the reed are at equal distances apart, each succeeding pair being connected by two interposed masses, *b*, of solder run between them, each of 35 such masses being extended from the reed-frame *c* about one-third of the distance between its two horizontal bars.

Pivoted to the reed-frame *c* are a warp-riser, C, and a warp-faller, D, each being formed of a stout wire bent twice at a right angle at 40 short distances from its ends, such being as shown in Fig. 1. In advance of the central part of the reed is a short stationary plate or bar, E, having usually four holes made down in it at equal distances apart, in two of which 45 are placed two pins, *d*, to serve as guides for the yarns of the warp. A plate, *x*, of like form, having the same number of holes in it at the same distances apart, I generally place directly over the plate E, and upon the warp where 50 crossing this latter plate. The auxiliary plate receives through it the two pins, and is to keep the warp in place on the plate E.

In front of the plate E are two rollers, G H, one being arranged directly over and somewhat above the other, the lower edge of the lower 55 roller being in the plane of the top of the plate E. The said rollers freely revolve, their journals being supported in suitable struts or bearings, *f*.

Above the rollers G and H are two draw- 60 rollers, I and K, the upper of which projects somewhat in front of the lower one. Resting on the upper of such draw-rollers is a pressure-roller, L.

The three rollers I, K, and L, arranged as 65 shown, are fixed upon three horizontal shafts, *g*, *h*, and *i*, there being fastened on the two shafts *g* and *h* two gears, *k* and *l*, that engage with each other. The lower of the gears *k* and *l* engages with a pinion, *m*, fixed upon one end 70 of another horizontal shaft, *n*, arranged in the frame in manner as represented. On the other end of the said shaft is a wheel or pulley, *o*, about which and another pulley, *p*, on a driving-shaft, *q*, an endless belt, *r*, runs. At the 75 middle of the shaft *q* is a driving-pulley, *s*, about which a belt, *t*, from a suitable motor is extended. The front edge of the upper draw-roller is directly over an open box, M, supported on wheels *u*. Into this box the con- 80 densed warp, ready for being dyed, runs from the said draw-roller. The warp is shown at W. It goes through the reed, whose dents separate the yarns from each other. From the reed the yarns converge and pass between the two 85 guide-pins *d*, thence they go under the roller G, thence between the two rollers G and H, thence over the latter roller and under the lower draw-roller, thence upward between the two draw-rollers and over the upper one and 90 between it and the pressure-roller, and thence down into the box M, all being substantially as represented in the drawings. While the draw-rollers operate to advance the concentrated warp, the two rollers G and H act as 95 eveners to it. Were but one roller used to guide the warp to the draw-rollers, the warp-yarns farthest from the surface of the said roller would be drawn tighter than those immediately next it; but by having two rollers 100 and the warp extended under one, thence upward between them and over the upper one, the warp-yarns become evenly strained before reaching the draw-rollers.

The "faller" and the "riser" are to enable an attendant to form in the warp "sheds" for the insertion in it of the usual "leases" or fastening-threads. By turning the faller down upon the warp half of the yarns of the latter will be forced down upon the lower solderings of the dents, the remaining yarns being at the same time depressed still farther between the dents. In this way a shed is formed. So by turning the riser upward against the warp and forcing it upward another such shed may be produced therein.

For applying a lease or "leash" to the warp, which is usually accomplished once in about every five hundred and twenty yards of the warp, the faller should be turned down upon the warp, so as to depress in the reed half of the yarns below the other half. A cord is next to be passed through the shed of the warps in front of the reed, after which the riser is to be turned upward against the warps, so as to raise them in the reed, with half of them above

the rest, so as to form in them another shed in front of the reed, through which shed the cord is to be drawn the opposite way. The riser is next to be dropped and the cord drawn and tied in the usual manner.

I claim—

The combination of the riser and faller, as described, with the frame A, the reed having the dents of each pair of it connected by soldering arranged between them, as represented, the two pins or guides in advance of such reed, the two eveners or rollers in front of such guides, and the draw-rollers arranged over and in advance of such eveners, such draw-rollers being provided with mechanism for revolving them, and all being essentially and for the purpose or purposes as set forth.

IRA FRANKLIN LAWRY.

Witnesses:

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