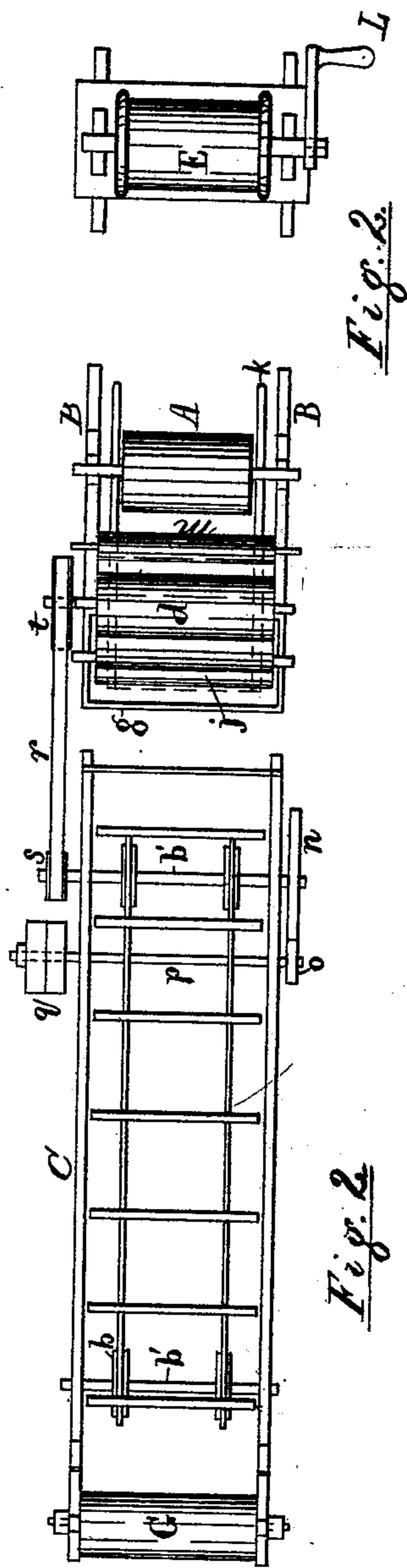
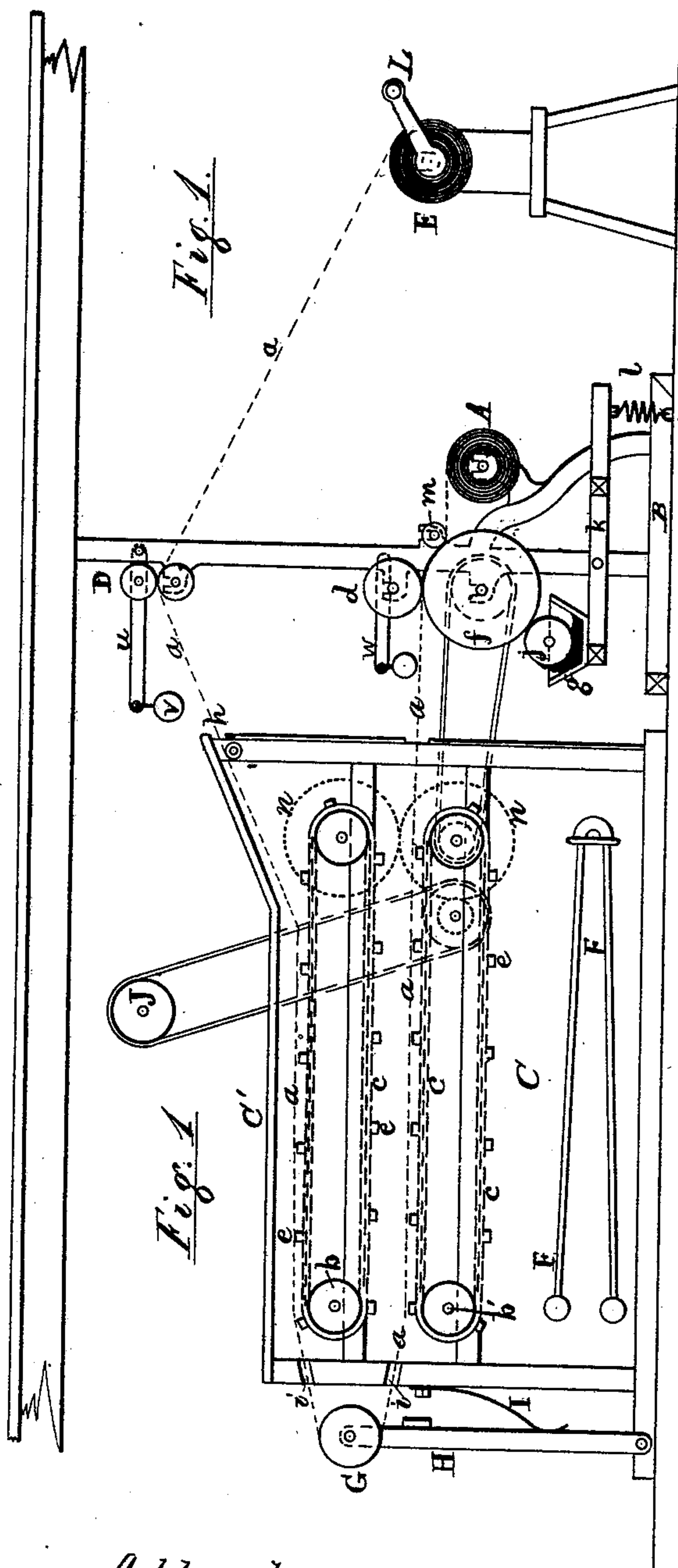


J. H. DeWITT.
Machine for Painting Wire-Cloth.

No. 214,994.

Patented May 6, 1879.



Attest:

Wm. Breach.

J. S. Crane.

Inventor.

J. H. DeWitt.

UNITED STATES PATENT OFFICE.

JOSIAH H. DE WITT, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR PAINTING WIRE-CLOTH.

Specification forming part of Letters Patent No. **214,994**, dated May 6, 1879; application filed January 27, 1879.

To all whom it may concern:

Be it known that I, JOSIAH H. DE WITT, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Wire-Cloth-Painting Machines, which improvement is fully described in the following specification.

My invention relates to certain improvements in a machine for painting and drying wire-cloth which has been already patented by me, No. 143,227, dated September 30, 1873; and consists in an improved apparatus for applying the paint to the cloth, and special arrangements for operating a painting and drying machine in conjunction, and equalizing the strain upon the cloth in its passage from the painting to the drying machine, and through the latter.

Figure 1 of the drawings shows a side view of the various devices, the framing of the machinery being in all cases removed from the nearer side to show the construction more clearly. Fig. 2 is a plan of the same, the cover of the drying-chamber being removed.

A is a roll of plain wire-cloth, and *a a* the cloth unwound from the same. B is a frame supporting the roll and carrying the painting devices. C is the drying-chamber, by means of which the painted cloth is dried, and from which it emerges at *h*. D D are calender-rolls, by which the cloth is freed from wrinkles; and E is a shaft or drum, upon which the cloth is finally wound.

The painting-machine consists of two pressure-rolls, one being arranged above the other, and the cloth passing horizontally between them, and the surfaces of the rollers being covered with felt or similar porous material. Beneath the lower roll a paint-trough is sustained by balanced levers, and carries a paint roll or distributor. *d* and *f* are the upper and lower rolls. *g* is the trough, *j* the distributing-roll, and *k* the balance-levers. These are pivoted to the frame B beneath roll *f*, and have the trough *g* arranged upon their front ends, while their rear ends are provided with springs *l*, to draw the levers downward and keep the roll *j* in proper contact with the lower side of roll *f*.

A fourth roll, *m*, is needed to insure the proper coating of the cloth with paint when

it passes between the pressure-rolls *d* and *f*, the mere pressure of those rolls not proving sufficient in practice to paint the interior of all the meshes.

The roll *m* is located back of the point of contact between the pressure-rolls, and retains the cloth for a short time under the influence of the paint carried upon the coating of the roll *f* as they revolve in contact.

The wire-cloth is led to the pressure-rolls beneath this guide-roll *m*, and is drawn by the revolution of the pressure-rolls in contact with the paint on the surface of the roll *f* until it passes between the rolls *f* and *d*. This thoroughly fills every interstice of the cloth with paint, and the surplus is then removed by the pressure of the rolls *d* and *f* as the cloth passes between them, and emerges to the drying-chamber C.

The drying apparatus consists of the closed chamber containing heating-pipes F and traveling chains, similar to the device already patented by me; but in my improved machine I multiply the number of carriers provided in the chamber C, that the cloth *a* may be retained a long time in contact with the hot air, and the great length avoided that would be required for a machine containing but one carrier equal in length to the lengths of the two carriers shown.

The two carriers, constructed with wheels *b*, chains *c*, and cross-bars *e*, are similar to those I have used heretofore; and a practical difficulty having been experienced in making the painting-rolls *d f* and the chains and cross-bars travel at precisely the same rate of speed, I have shown at G a device for equalizing the strain upon the wire-cloth in its movement through the drier. This consists of a roller mounted upon a swinging frame, H, and provided with springs I, of sufficient flexibility to compensate for the occasional variations in the length of the cloth *a* when it passes over the roller G. Thus, if the first or lower carrier delivers more cloth than the upper carrier can remove, the roller G recedes somewhat from the carrying-wheels *b*, and supports the partially-dried cloth effectually. This equalizing-roller is also of great use in case the belt *r* should slip or break, as in that case the painting-rollers would hold back on the cloth

for a time (until the defect was remedied by stopping the machine) and tear it apart, except for the yielding of the roller G.

At the point where the cloth passes over the roller G, I prefer to have it exposed to the cold air for a short time, and the cover C' of the drying-chamber may be removed for a sufficient distance to effect this exposure; but by placing the roller G at a suitable distance from the chamber, it may be made to serve both functions, and the cloth may then be passed through narrow openings, as at *i*, in the rear of the chamber, and all needless loss of heat be prevented.

The two carrying-wheel shafts *b'* nearest the front of the drying-chamber are provided with gear-wheels *n*, and the lower one is driven by a pinion, *o*, on a shaft, *p*, provided with fast and loose pulleys *q*, which receive the requisite motion from a driving-pulley, J, overhead.

To secure an equality of movement in the painting and drying machines, they are connected by a belt, *r*, applied to two pulleys, *s* and *t*, placed, respectively, upon the carrying-wheel shaft of the drier and the shaft of the pressure-roll *f*.

By the arrangement of two or more carriers in one chamber in the manner herein described, a great economy of space is secured, as over one hundred feet of traverse is needed to dry the cloth when painted with the most volatile materials. The cost of such a machine is also very much less than that of a long one of the same capacity, the amount of chain being the same in both cases, while the framing costs but little more than one-half, and the heat is more concentrated and easier maintained at the proper point.

If three carriers are employed, the cloth would be delivered at the opposite end from which it entered, and would be cared for in the same manner as is shown in the drawings.

A small bearing-roll is provided at *h*, where the cloth leaves the drier, and it is then passed between two rolls, D, one of which revolves in fixed bearings, while the other is pressed

against it by levers *u*, provided with weights *v*. The cloth is thoroughly smoothed by these rolls, the carrying-pins on the bars *e* in the drier having a tendency to draw and dent the cloth slightly, and it is then wound up by an attendant upon the reel E by a hand-crank, L.

I do not regard the particular use of springs or weights essential in the places where I have employed them to produce pressure or tension, and therefore claim the right to substitute the one for the other, as may be desired; neither do I regard the particular use of gear-wheels upon the shafts *b'*, or the connecting of the roll *f* with shaft *b'* by a belt, as necessary features of my invention, as a belt and pulleys may be substituted for the gears, and gearing with shafts and cog-wheels may be used in the place of the belt *r* and pulleys *s* and *t*.

I am aware that two or more carriers combined with a heated chamber have already been used for drying fruit, fertilizers, &c., and I do not claim the same except in the combination hereinafter set forth; but,

Having shown the operation of the equalizing device G H I to be essential to the use of the carriers in machines for painting wire-cloth, I claim the same in combination in the following manner:

1. The reel A, pressure-rolls *d* and *f*, guide-roll *m*, distributing roll *j*, trough *g*, balance-levers *k*, and springs *l*, all arranged and combined substantially as shown and described.

2. The combination of a painting device, a drying-chamber, and a device for equalizing the strain upon the wire-cloth in its passage through the drying-chamber and its transfer from one carrier to another, substantially as herein set forth.

In testimony that I claim the foregoing as my own invention I hereunto subscribe my name in the presence of two witnesses.

J. H. DE WITT.

Witnesses:

W. D. BREATH,
T. S. CRANE.