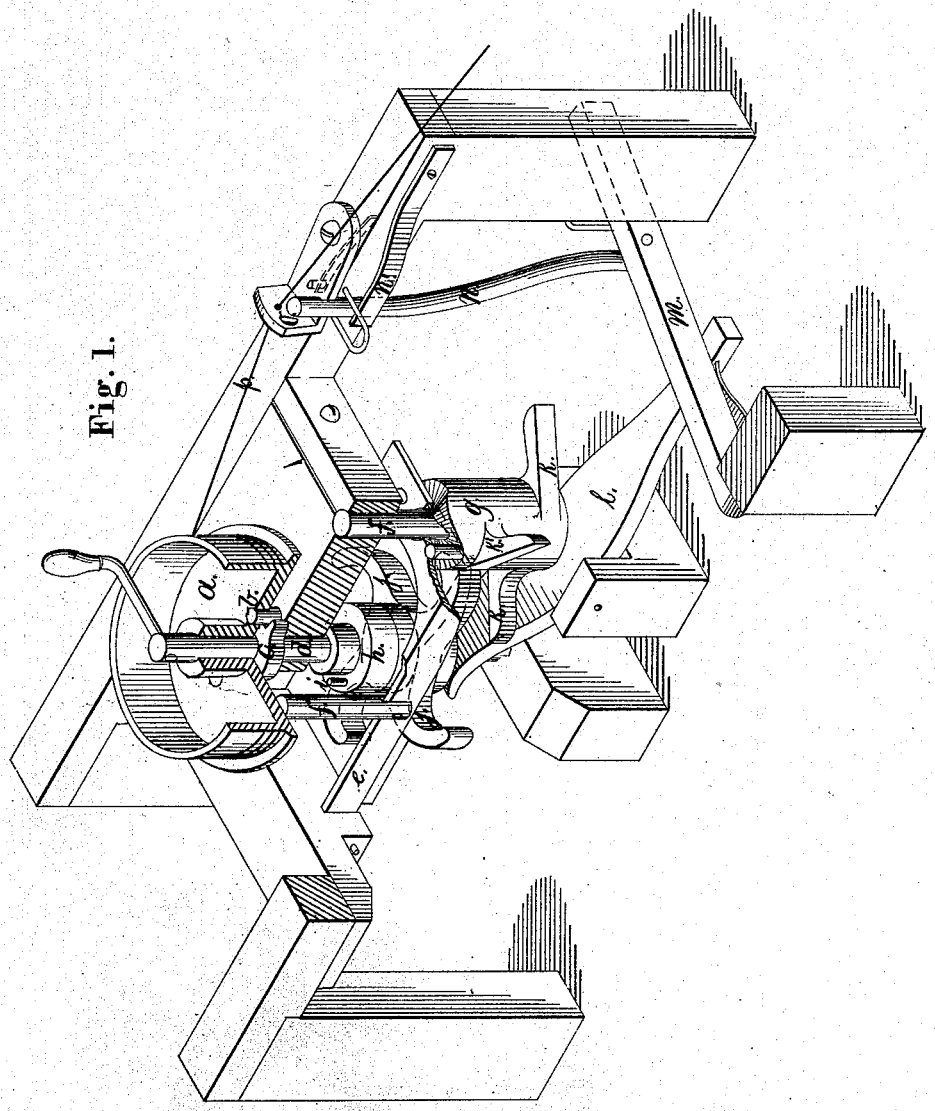
2 Sheets—Sheet 1.

J. S. WINSOR.

Wire-Drawing Machine.

No. 207,330. Patented Aug. 20, 1878.

Fig. 1.



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William L. Coop

INVENTOR:

Joseph S. Winsor

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2 Sheets—Sheet 2.

J. S. WINSOR.

Wire-Drawing Machine.

No. 207,330 Patented Aug. 20, 1878.

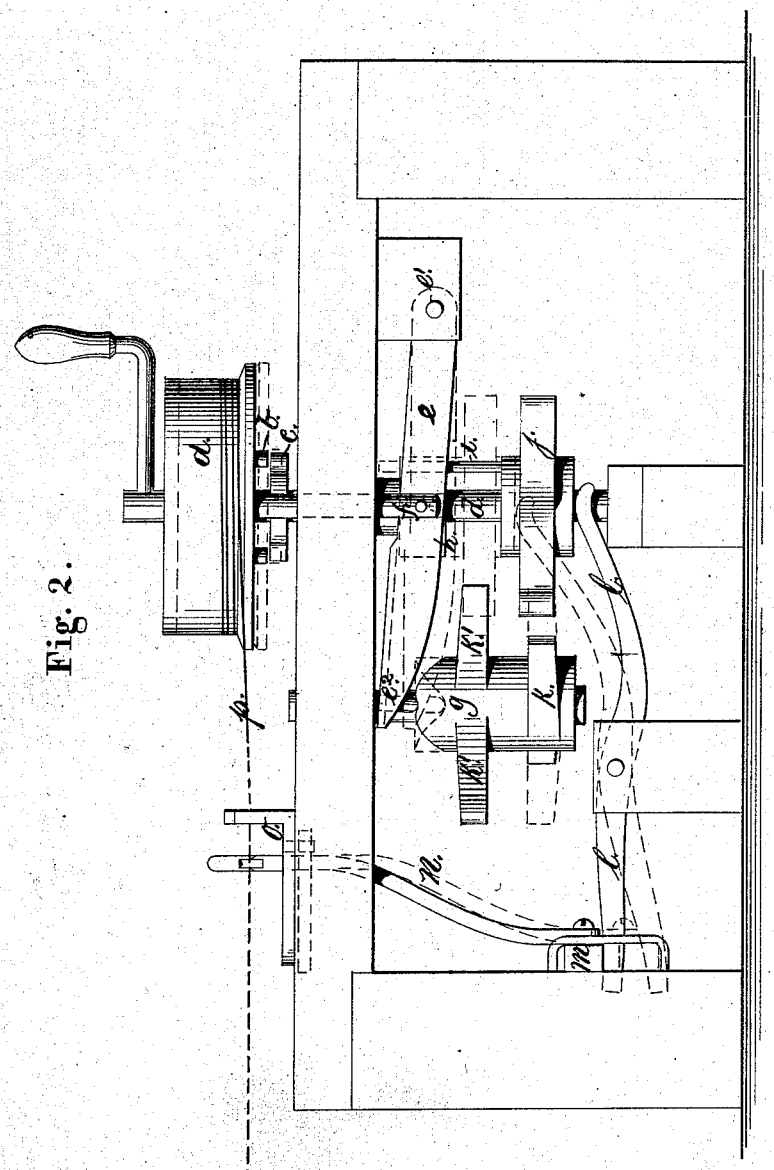

Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSEPH S. WINSOR, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN WIRE-DRAWING MACHINES.

Specification forming part of Letters Patent No. **207,330**, dated August 20, 1878; application filed May 15, 1878.

To all whom it may concern:

Be it known that I, JOSEPH S. WINSOR, of the city and county of Providence, and State of Rhode Island, have invented new and useful Improvements in Wire-Drawing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement on wire-drawing machines as at present in general use; and consists in the application of automatic mechanism, by which the wire-drum is raised above the driving-clutch when the wire breaks.

In the drawings, Figure 1 is a a perspective view of a wire-drawing machine, parts of the frame and part of the drawing-drum of which are shown broken away to show the mechanism more clearly, all of which parts are shown in the position occupied when wire is being drawn. Fig. 2 is a front elevation of a wire-drawing machine, showing the position of all the parts in solid lines when the wire has broken and in broken lines when the machine is drawing wire.

Similar letters of reference indicate corresponding parts.

a is the draw-head or drum on which the wire is wound after passing through the draw-plate. It is provided with the clutch-pins *b*. The draw-head is loose on the shaft. When lowered in its place for drawing wire the pins *b* engage with the clutch *c* secured to the shaft *d*, to which power is applied in the usual manner. This driving-shaft, provided with the clutch *c* and the drawing-head, constitute the elements of the usual wire-drawing machine. The improvement consists in automatically raising and thus detaching the drawing-head from the clutch and again automatically lowering and connecting the drawing-head to the clutch and driving-shaft *d*, and in performing these operations by the power applied to the driving-shaft and through the shaft. For this purpose I secure two levers, *e*, hinged at e^1 and united at e^2, their forward end. These levers *e* are placed on each side of the shaft *d* sufficiently apart to allow the clutch *c* to revolve freely between the two posts *f* hinged to the levers *e*, and preferably provided at their upper end with rolls or some anti-friction device. When, therefore, the end e^2 of the levers *e* is raised, the posts *f* will raise the drawing-head and disengage the same from the clutch *c*, and the shaft *d* will revolve without the drawing-head, as shown in Fig. 2 in solid lines. The ends e^2 of the levers *e* are provided with small rollers or partially-rounded bearing-pins, which rest on the double cam *g*. (Shown in one position in solid and the other in broken lines in Fig. 2.) When the cam *g* is turned one-fourth of a revolution, the levers *e*, through the posts *f*, raise or lower the drawing-head. As the raising or lowering of such a mass as the drawing head or drum of a wire-drawing machine, particularly when nearly covered with wire, requires considerable force, I place on the shaft *d* the collar *h*, provided with a hole, through which the pin *i*, secured to the four-armed cam *j*, can pass as the said cam is raised or lowered, and also carry the cam around with the shaft *d*. In place of the collar *h* and pin *i* the cam *j* may be loosely fixed on the shaft *d* by a spline, so that the cam can be raised and lowered on the shaft *d*.

K and K′ are two sets of arms, two of each set opposite to each other. As shown in Fig. 2, the cam *j* will revolve without touching the arms K, as shown in solid lines; but as soon as the cam *j* is raised one of its curved arms will come in contact with the arm K′ and will revolve the cam *g* one-fourth of a revolution, which will permit the levers *e* to descend, and with them the draw-head *a*, thus bringing the latter into gear with the clutch *c*. The cam *j* is raised by the lever *l*, one end of which reaches under the cam and the other under the foot-treadle *m*, to which the rod *n* is secured.

o is a pivoted draw-plate holder, held by a spring out of the direct line between the reel and draw-head, or in such other position as will cause it to swing into a notch in the rod *n* when the wire is passing through the draw-plate. As soon as the wire breaks, the swinging die-holder is moved on its pivot by the pressure of the spring and releases the rod *n*, allowing the foot-treadle to rise, and thus releasing the lever *l* and allowing the cam *j* to descend, when it comes in contact with the arms K and turns the cam *g*, which raises the lever *e*, and, through the posts *f*, the draw-

head, and stops the same automatically, as shown in Fig. 2 in solid lines.

The draw-head can be stopped at any time by pushing the rod *n* outward against the spring *n'* without breaking the wire.

By the aid of this device drawing-machines constructed on the old plans can be made to operate automatically at a small outlay, and they can be readily stopped or started without stopping the driving-shaft, and virtually by the shaft itself, as the position of the foot-lever enables the shaft *d* to raise or lower the draw-head.

The construction is simple, and all the parts strong and durable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the draw-head *a*, of the four-throw cam *j*, the cam *g*, provided with the arms K and K', and means, substantially as described, by which the draw-head is raised, as described.

2. The combination, with the hinged spring-pressed draw-plate *o*, rod *n*, foot-treadle *m*, and the draw-head *a*, of the cams *j* and *g*, and means, substantially as described, by which the draw-head is stopped automatically when the wire breaks or runs through.

JOSEPH S. WINSOR.

Witnesses:
JOSEPH A. MILLER,
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