

(No Model.)

A. S. & T. BOLTON.
METHOD OF DRAWING WIRE.

No. 397,271.

Patented Feb. 5, 1889.

Fig. 1

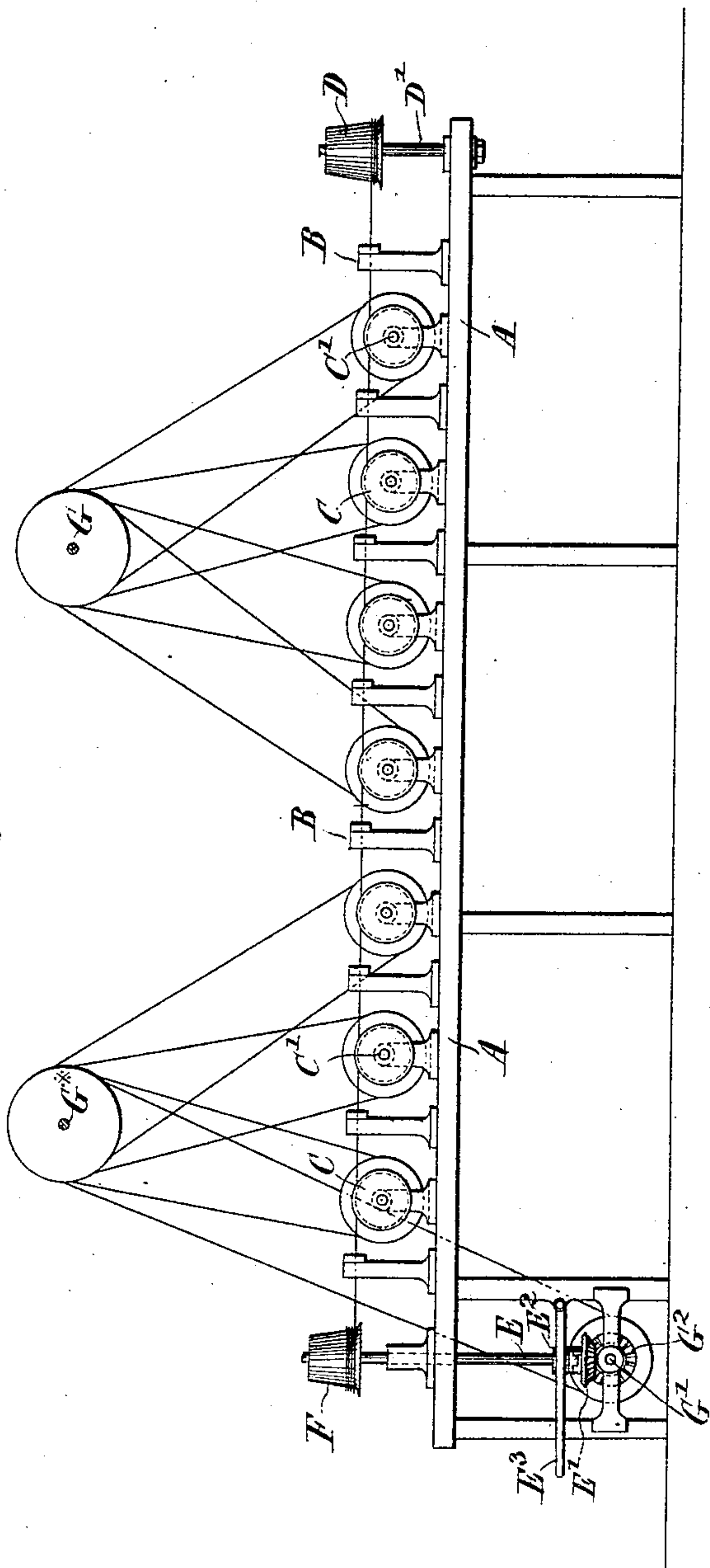
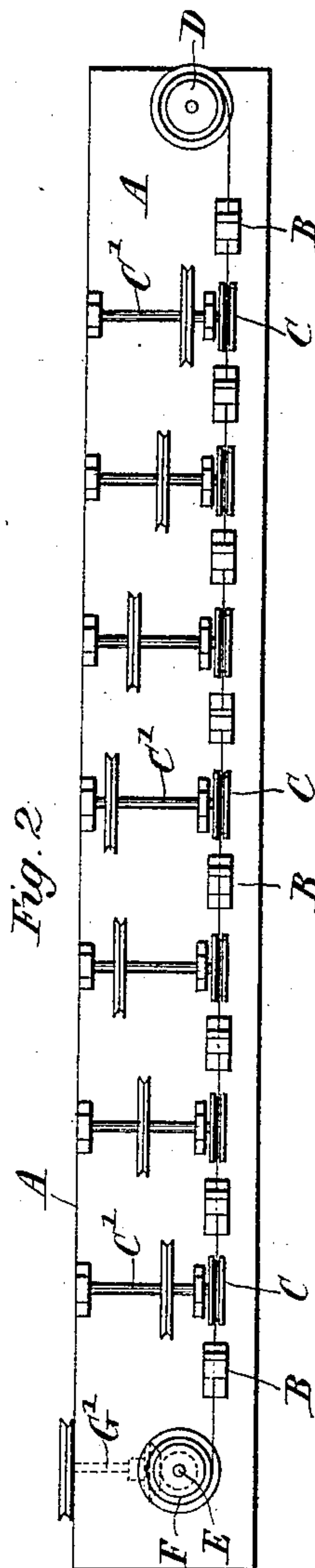


Fig. 2



Witnesses.
Emil Herter.
O. Sundgren.

Inventors.
Alfred S. Bolton
Thomas Bolton
By Attorneys
Blount & Hall

UNITED STATES PATENT OFFICE.

ALFRED S. BOLTON AND THOMAS BOLTON, OF OAKAMoor MILLS, NEAR
CHEADLE, COUNTY OF STAFFORD, ENGLAND.

METHOD OF DRAWING WIRE.

SPECIFICATION forming part of Letters Patent No. 397,271, dated February 5, 1889.

Application filed June 28, 1887. Serial No. 242,725. (No model.) Patented in England July 9, 1886, No. 8,977; in Germany May 13, 1887, No. 42,610; in France July 21, 1887, No. 184,923, and in Belgium July 25, 1887, No. 78,343.

To all whom it may concern:

Be it known that we, ALFRED SOHIER BOLTON and THOMAS BOLTON, copper and brass manufacturers, both of Oakamoor Mills, near
5 Cheadle, in the county of Stafford, England, have invented an Improved Mode of Drawing Wire, of which the following is a specification.

Our invention is also the subject of Letters
10 Patent in Great Britain, No. 8,977, dated July 9, 1886; in Germany, No. 42,610, May 13, 1887; in France, No. 184,923, July 21, 1887, and in Belgium, No. 78,343, July 25, 1887.

Our invention relates to a novel method of
15 drawing wire through several stages at one operation.

It has already been proposed to subject wire to a series of drawings through a set of dies mounted on one draw-bench, and the use
20 of complicated mechanism has been suggested for adjusting the speed of travel of the wire in its progress through the set of dies. To render this complicated mechanism unnecessary, and yet to give the proper speed of
25 travel to the wire, is the object of the present invention. When subjecting wire to the action of two or more dies consecutively in a draw-bench arranged after the well-known manner, the wire led from the hank on the
30 reel and passed through the first die of the set is laid around a driven block or pulley, whence it passes through the second die, then around a second driven block or pulley, and so on until it reaches the take-up drum.

35 According to our invention we drive all these blocks or pulleys at a surface speed in excess of the maximum rate of speed intended to be imparted to the wire, and we rely on the friction of contact set up between the
40 pulleys and the lapped wire to effect the requisite draft, so that whatever elongation of the wire takes place in passing through the dies the travel of the wire between each die adjusts itself in proportion to the amount of
45 elongation and the speed at which it is coiled onto the finishing or take-up drum.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a plan view of a

draw-bench arranged to carry out our improved mode of drawing wire. 50

A is the bench top and framing.

B B B are the dies mounted in the usual or it may be in any other convenient manner and set at suitable distances apart. Between these dies are mounted flanged or grooved
55 drawing blocks or pulleys C. These blocks C are carried on the ends of axles C', which turn in bearings fitted to the draw-bench.

D is a reel mounted loosely on a fixed axle, D', standing up from the draw-bench. This
60 reel is charged with the hank of wire to be drawn, and delivers its wire to the first die B under the stress of the draft imparted thereto during the drawing operation.

E is a vertical shaft mounted on a foot-step
65 carried by the end framing of the draw-bench and projecting upward through a fixed collar or bearing fitted to the upper face of the bench.

F is the finishing-drum for taking up the
70 drawn wire and maintaining a proper draft thereon as it leaves the last of the series of dies B. This finishing or take-up drum is locked to its shaft, so as to rotate therewith.

Motion is imparted to the several blocks
75 C C and the drum F from two overhead shafts, G G*, Fig. 1. Each of these shafts is furnished with four grooved band-pulleys, from which bands lead down to grooved pulleys fitted to the axles C' and to a transverse
80 shaft, G', respectively. Keyed to the shaft G' is a miter-wheel, G², which gears into a miter-wheel, E', loose on the vertical shaft E. A sliding clutch, E², fitted to this shaft, serves to lock the miter-wheel to the shaft E and
85 start the machine. When, however, the drawing is required to cease, the attendant, by lifting the clutch-lever E³, will lift the clutch from contact with the boss of the miter-wheel E', when the rotation of the take-up drum,
90 and consequently the draft on the wire, will cease. The blocks C, however, will continue to rotate and slip in the coils of the wire. In this arrangement it will be seen that no provision is made for adjusting the speed of the
95 blocks or pulleys, such a contrivance being

unnecessary, owing to the continual slip of the lapped wire upon the blocks C.

We may state that we prefer to drive all the blocks at one circumferential speed, as the machine is then adapted for the lightest or heaviest drafts which the material operated upon is intended to receive at each die.

From the foregoing explanation it will be understood that in availing ourselves of the slip of the wire on the driven blocks or pulleys we secure proper drafts on the wire without providing any special and expensive mechanism for adjustment of their speed, the friction between the drawing-blocks and the wire causing the latter to travel exactly in accordance with the rate at which the finishing-drum winds it up after passing through the last die.

Having now set forth the nature of our in-

vention, we wish it to be understood that we claim—

The improvement in the art of drawing wire through a successive series of dies at one operation, consisting in subjecting the wire between the several dies to the action of successive pulling surfaces running at a velocity in excess of the maximum rate of speed imparted to the wire and permitting the draft between the successive dies to regulate itself by the slipping of the wire on said surfaces, substantially as herein described.

ALFRED S. BOLTON,
THOS. BOLTON.

Witnesses:

W. A. COWLESHAW,
JNO. N. MALLETT,
Clerks to Paddock & Sons, Solrs., Hanley.