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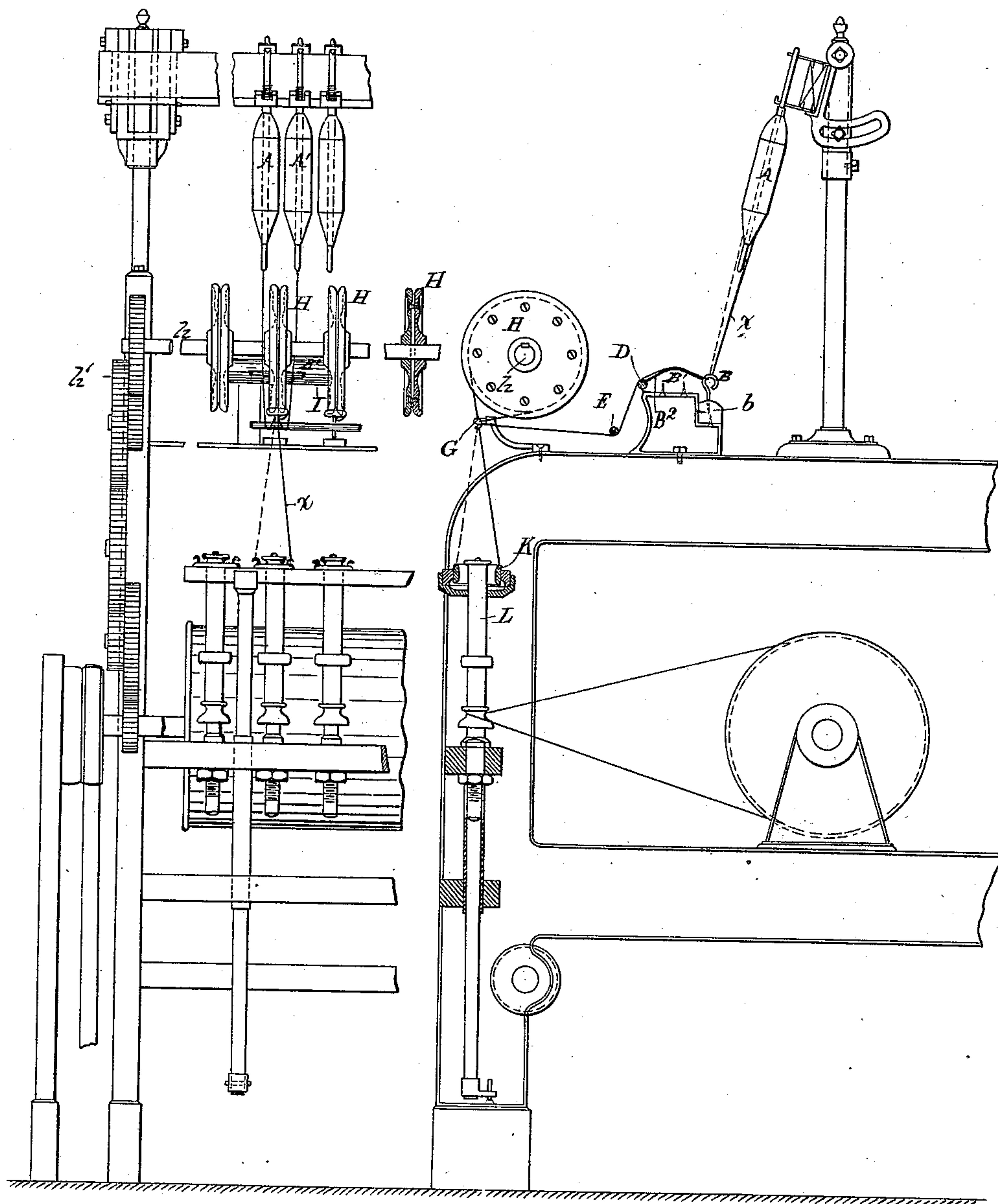
P. HEBBELYNCK.
DOUBLING AND TWISTING MACHINE.

No. 361,588.

Patented Apr. 19, 1887.

Fig. 1.

Fig. 2.



Attest.
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Inventor:
Paul Hebbelynck.
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Atty

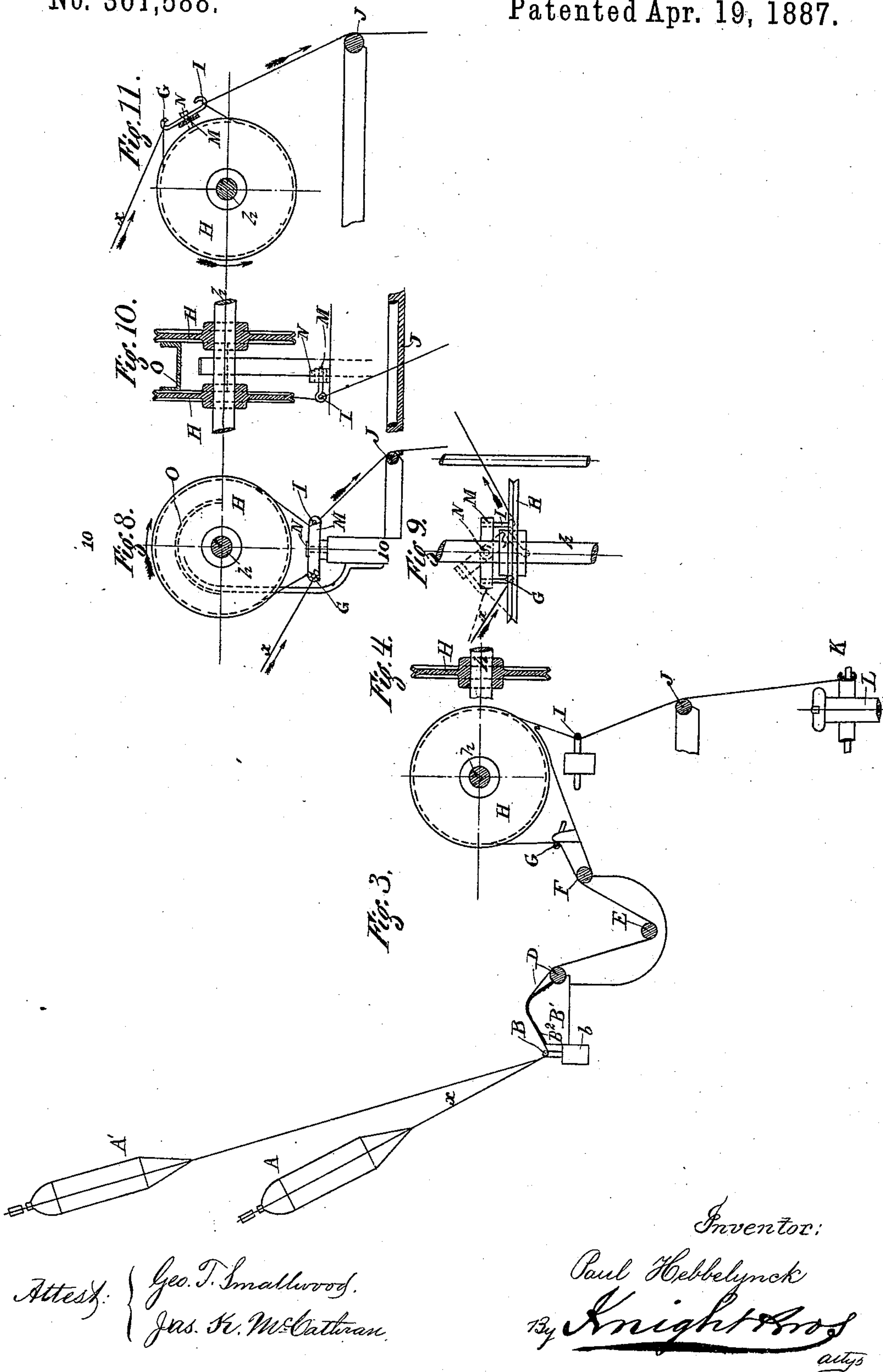
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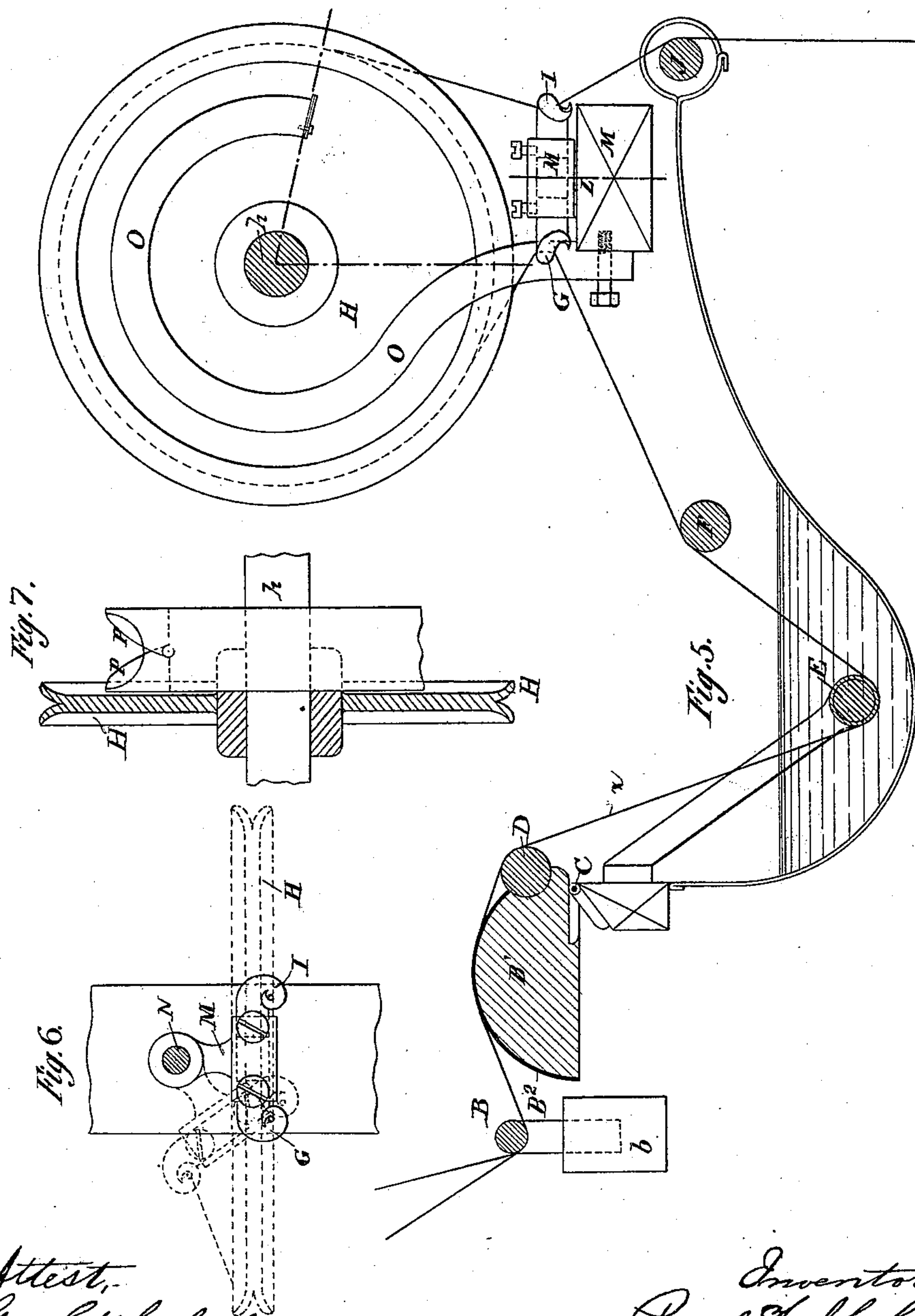
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DOUBLING AND TWISTING MACHINE.

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Patented Apr. 19, 1887.



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UNITED STATES PATENT OFFICE.

PAUL HEBBELYNCK, OF GHENT, BELGIUM.

DOUBLING AND TWISTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 361,588, dated April 19, 1887.

Application filed January 12, 1885. Serial No. 152,657. (No model.) Patented in England June 11, 1884, No. 8,847, and in Belgium October 5, 1884, No. 66,161.

To all whom it may concern:

Be it known that I, PAUL HEBBELYNCK, a subject of the King of Belgium, residing at Ghent, in the Kingdom of Belgium, have invented certain new and useful Improvements in Doubling and Twisting Machines, of which the following is such a full, clear, and exact description as will enable those skilled in the art to practice the same.

In ordinary doubling and twisting machines the threads to be operated upon pass from suitable cops or bobbins to and between a roller or cylinder positively driven and a weighted roller or cylinder resting thereon, the latter being rotated by contact with the former, and by these rollers the said threads are delivered at a uniform velocity to the traveler or flier of the twisting-machine.

My present invention consists in certain features of novelty which are hereinafter particularly pointed out in the claims, being first fully described with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of a twisting-machine, showing the positively-driven shaft and several delivery-pulleys secured thereto, one of said pulleys being shown detached and in axial section. Fig. 2 is a view of a portion of a twisting-machine, partly in section and partly in elevation, showing one of the delivery-pulleys, together with one form of the tension device, and hooks or eyes for guiding the threads to and from said pulley, causing them to encircle the greater portion of its periphery. Fig. 3 is a sectional elevation of the cops or bobbins from which the threads to be twisted into a single strand are drawn, the twisting device, the delivery-pulley, the tension device under a slight modification, and other parts hereinafter referred to and described in detail. Fig. 4 is an axial section of one of the delivery-pulleys of slightly modified construction. Fig. 5 is a sectional elevation, on a larger scale, of the preferred form of the tension device, the delivery-pulley, the hooks for guiding the threads to and from it, a pivoted block to which said hooks are secured, (constituting with said hooks the "deflector," hereinbefore mentioned,) and the thread stop or cutter. Fig.

6 is a plan of the said deflector, the delivery-pulley being shown in dotted lines. Fig. 7 is a view showing the delivery-pulley in axial section and its shaft and the thread stop or cutter in elevation. Figs. 8, 9, 10, and 11 are views illustrating details to be hereinafter referred to.

A A' represent the cops or bobbins from which the threads to be twisted are drawn, and K and L the traveler and bobbin, respectively, of a ring doubling or twisting machine. These parts form no part of the present invention and are only shown for the purpose of illustrating its application.

As has been already intimated, the invention is equally applicable to twisting-machines generally, whether the twisted thread be guided to the spool or bobbin upon which it is wound by means of a traveler and its ring, as shown in the drawings, or by means of a flier, the construction of which is well understood by those skilled in the art, and needs no further description here.

In describing my invention I shall employ the term "twisting device" as meaning the spool or bobbin upon which the twisted thread is wound, and any of the well-known devices for guiding said thread to said spool, together with the rotary spindle and other necessary accessories. The invention relates to the parts located intermediate of this twisting device and the cops or bobbins from which the threads to be twisted are drawn. The threads x , in passing from the cops or bobbins A A', are subjected to the action of a tension device, after which they pass over a grooved pulley, H, keyed to a shaft, h , positively driven by suitable gearing, h' , or by belts, if preferred. This pulley is termed the "delivery-pulley," for the reason that it is used instead of the delivery rollers or cylinders usually employed, and is driven at such a velocity as to deliver the threads at a uniform velocity to the twisting device. It is preferably formed, as shown in Figs. 4, 7, and 10, of a single disk having a peripheral groove of approximately V shape within which the threads rest; but it may be formed, as shown in Fig. 1, of two disks secured together by screws, bolts, or otherwise.

In order to produce the necessary friction

between the threads and the periphery of the pulley to enable the latter to draw the former from the cops or bobbins notwithstanding the tension device, I cause the said threads to encircle a greater part of its periphery. This may be accomplished by locating directly in the plane of the groove in the pulley a single hook or eye, as represented at G in Fig. 2, through which said threads pass on their way to and from it. I prefer, however, to employ two, as represented in the other figures of the drawings, through one of which the threads pass on their way to, and through the other of which they pass on their way from, it, as represented at G and I, respectively. In Figs. 2 and 3 these hooks (or hook) for guiding the thread to and from the grooved delivery-pulley are stationary, while in Figs. 5, 6, 8, 9, 10, and 11 they are secured to a pivoted block, and with it constitute a deflector, for the purpose hereinafter described.

The tension device is susceptible of various modifications, three of which I have shown in Figs. 2, 3, and 5, respectively, the latter form being preferable. In Fig. 2 the threads pass from the cops or bobbins A A' through a hook, curl, or guide, B, of any suitable shape, secured to a rail, b, thence over a board, B', covered with flannel or other suitable material, as represented at B²; thence over a glass rod, D; thence under a glass rod, E, and thence to the hook or eye, which guides them into the groove in the periphery of the delivery-pulley. In Fig. 3 the parts and their arrangement are about the same as in Fig. 2, with the addition of a glass rod, F, over which the threads pass as they leave the rod E, the latter being submerged in water. After leaving the delivery-pulley the threads are shown in Figs. 3 and 5 as passing over a glass guide-rod, J; but this rod may or may not be necessary, according to the position which the delivery-pulley occupies relatively to the traveler or flier of the twister. In Fig. 5 the parts and their arrangement are the same as in Fig. 3; but in this figure the board B' is hinged, as at C, to permit it to be raised or lowered to increase or lessen the tension, as may be desired. The increase in the tension would be due to the increase in the area of contact between the threads and the board and the decrease in the angle made by the threads in passing the hook or eye B. This angle becomes less as the board is raised and the thread is brought into contact with the periphery of said board (which is preferably curved) for a greater number of degrees.

The deflector consists of a block, M, which is mounted upon a pivot stud or bolt, N, whose axis is perpendicular to the axis of the shaft h and a little to one side of the plane of the pulley. To this block are secured the hooks or eyes G and I for guiding the threads as they pass to and from the groove in the pulley, as before explained. Usually the thread passes

from the cops or bobbins to the twisting device practically in a single plane, which is that in which the delivery-pulley revolves. When all of the threads to be twisted are present, the deflector will occupy the position shown in full lines, the eyes or hooks G I being in the same plane as the groove in the pulley; but when one thread breaks between the delivery-pulley and the twisting device the tension of the threads upon the opposite sides of the said pulley becomes unbalanced, and by reason of the superior tension on the threads going to the pulley the deflector is caused to swing around into the position represented in dotted lines. This carries the eye G out of the plane of the groove in the pulley, which deflects the threads therefrom.

O is a shield supported over the shaft h and between the pulleys H, onto which the threads drop when deflected from the groove in the pulley. This shield is provided with angular pieces P, which may be so formed as to hold or cut the threads, as may be desired.

Figs. 8, 9, and 10 illustrate a modification in the manner or direction in which the threads may pass to and from the hooks or eyes G and I. Fig. 8, being a side elevation, illustrates the vertical inclinations of the threads on opposite sides of the pulley; and Figs. 9 and 10, being views of the pulley looking in the direction of its plane, show the angles which said threads make with the plane of said pulley. Fig. 11 shows a modification in the location of the deflector, it being located above the shaft h and on the side adjacent to the twisting device, instead of beneath it.

It will of course be understood that there is a delivery-pulley for each traveler, and that the number employed in any one machine may be varied at pleasure.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with a tension device and the twisting device, of a grooved delivery-pulley, a shield located at the side of said pulley, and a deflector, substantially as described, for deflecting the threads from the groove in the delivery-pulley, substantially as set forth.

2. The combination, with a tension device and the twisting device, of a grooved delivery-pulley, a shield located by the side of said pulley, a pivoted block, and a pair of hooks or eyes through which the threads pass to and from said pulley, substantially as set forth.

3. The combination, with a tension device and a twisting device, of a grooved delivery-pulley, a shield located at the side of said pulley, a block pivoted to one side of the plane of the pulley, and a pair of hooks or eyes secured to said block and normally lying in the same plane as the pulley, substantially as set forth.

4. The combination, with a tension device

and the twisting device, of a grooved pulley, a shield having angular projections, and a deflector, substantially as set forth.

5 5. The combination, with a tension device and the twisting device, of a delivery-pulley, a thread-cutter, and a deflector, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

PAUL HEBBELYNCK.

Witnesses:

ALFRED HEFELNER,
GUSTAVE DE VOS.