

No. 682,558.

Patented Sept. 10, 1901.

J. S. H. LOVETT.

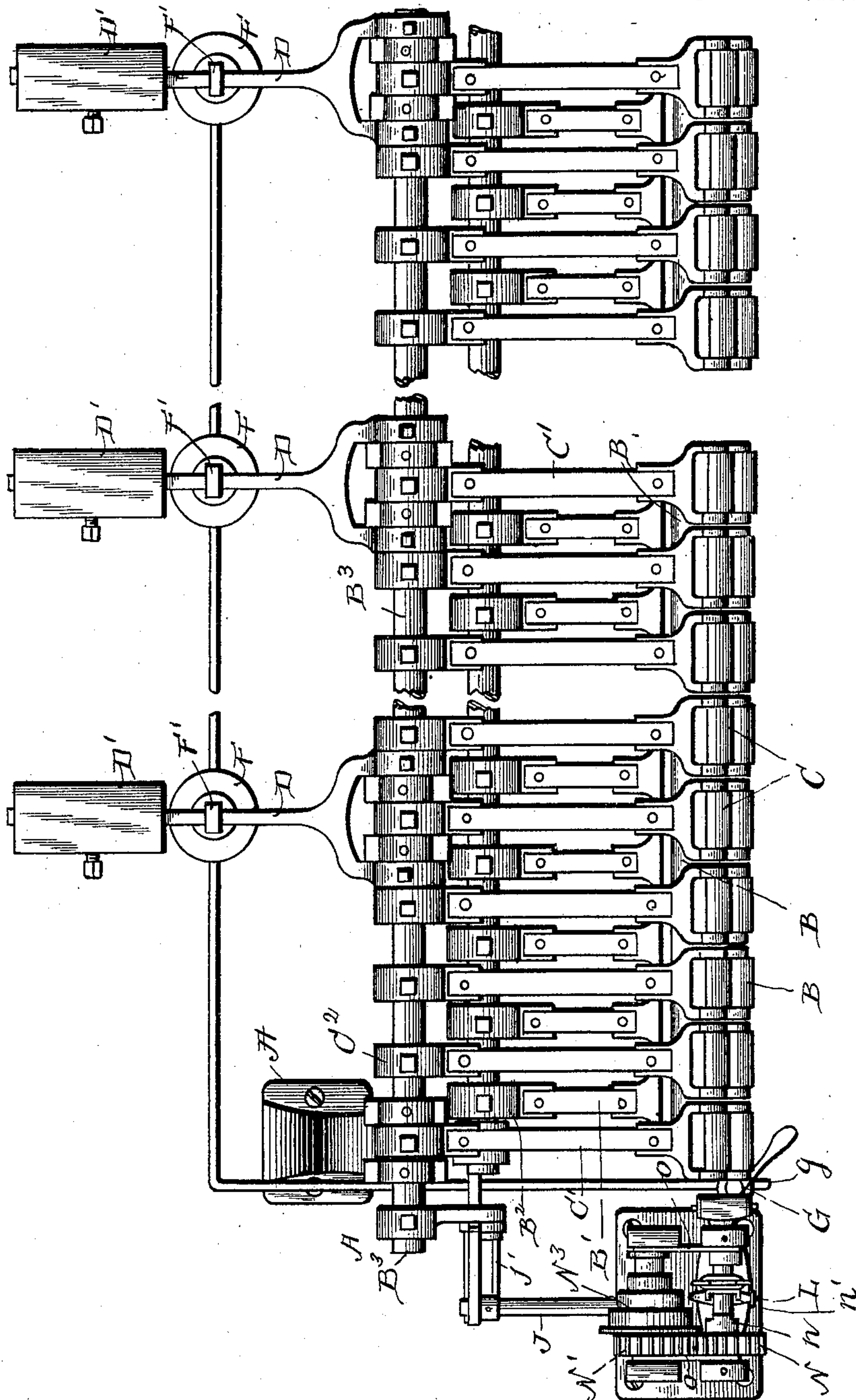
HOSE MACHINE.

(Application filed Jan. 4, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



Witnesses:  
George M. Anderson  
Nellie G. Mc Hartley

Inventor:  
J. S. H. Lovett,  
By E. W. Anderson -  
his Atty.

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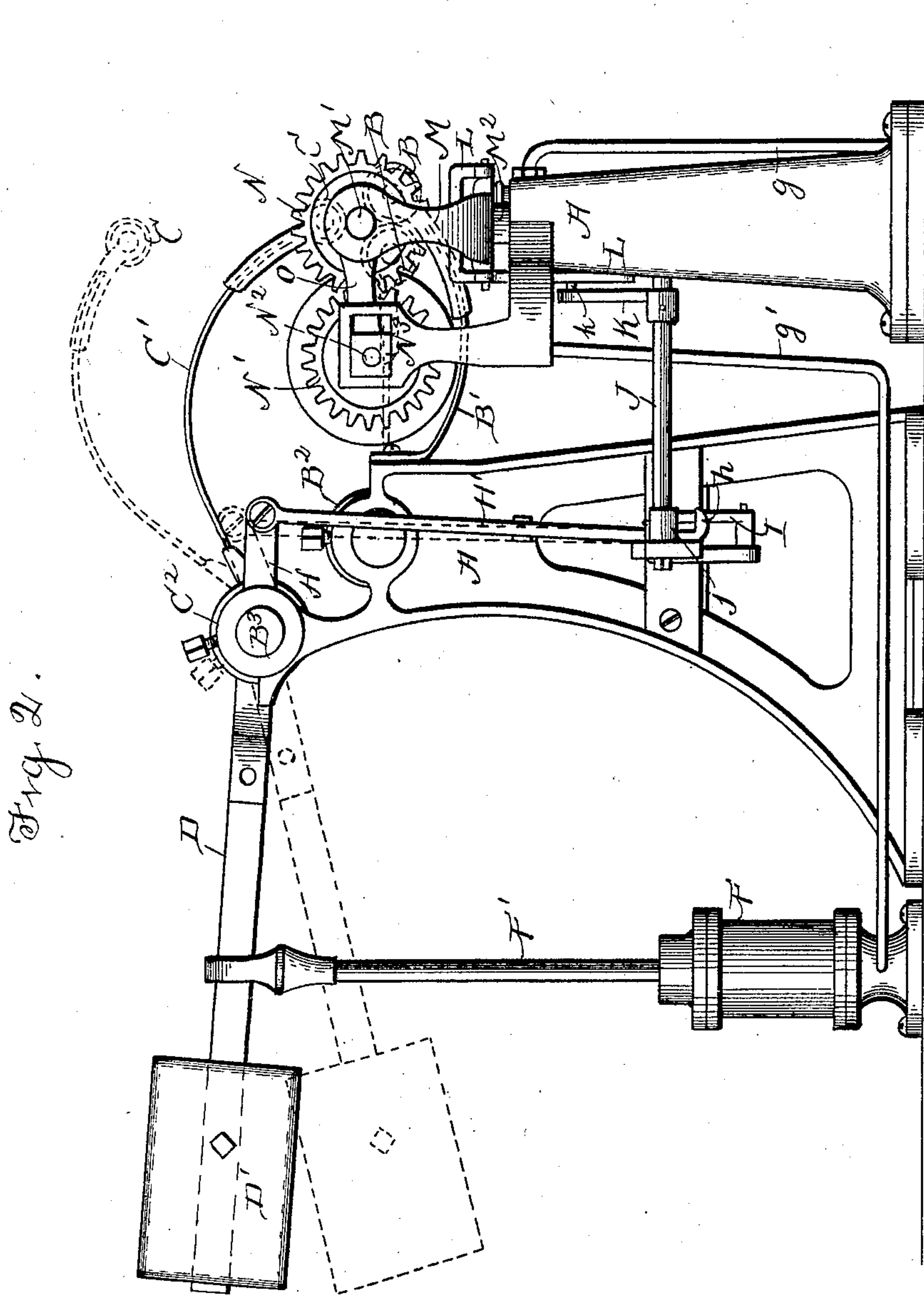
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HOSE MACHINE.

(Application filed Jan. 4, 1901.)

(No Model.)

3 Sheets—Sheet 2.



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## HOSE MACHINE.

(Application filed Jan. 4, 1901.)

(No Model.)

**3 Sheets—Sheet 3.**

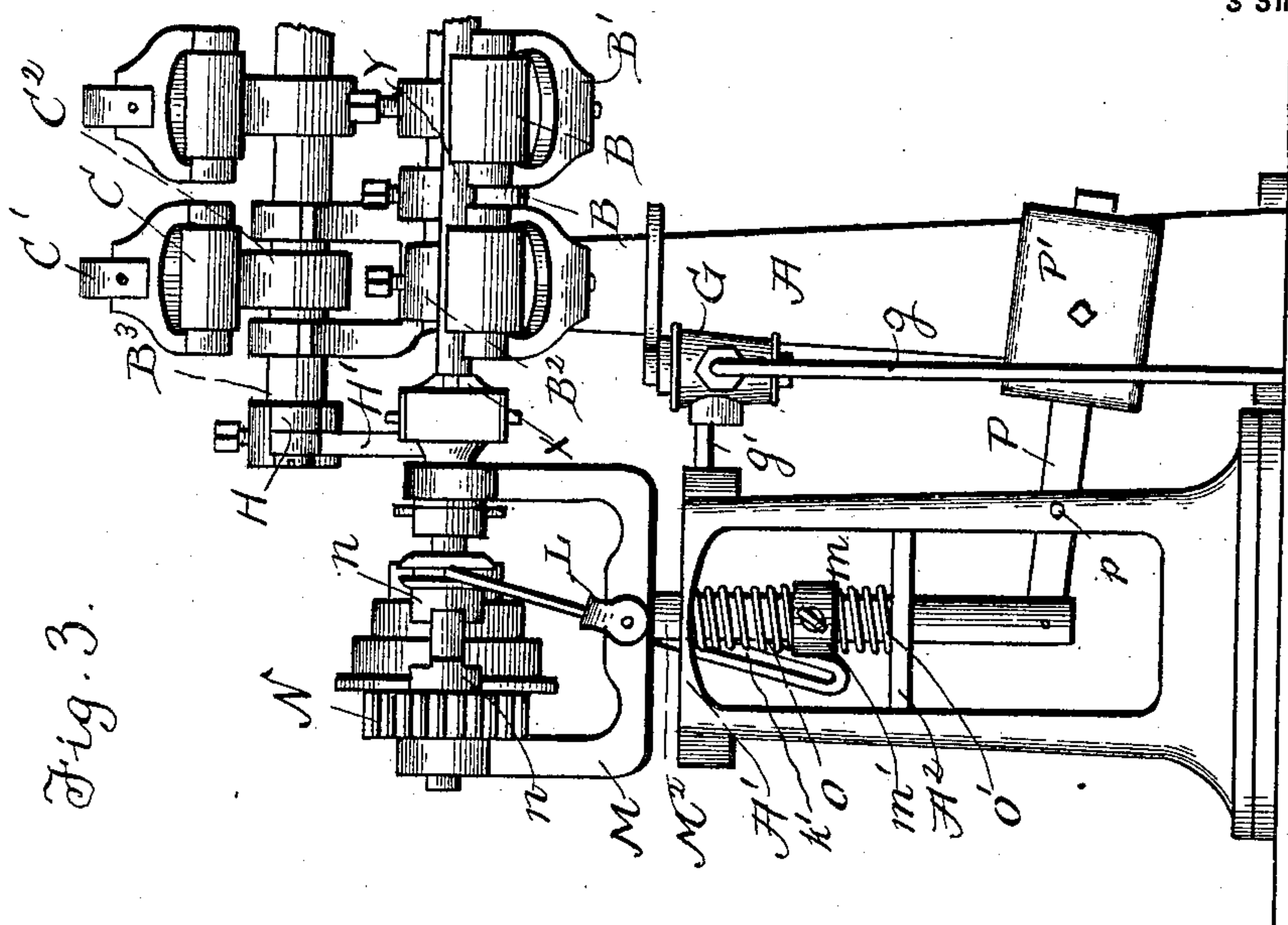


Fig. 3.

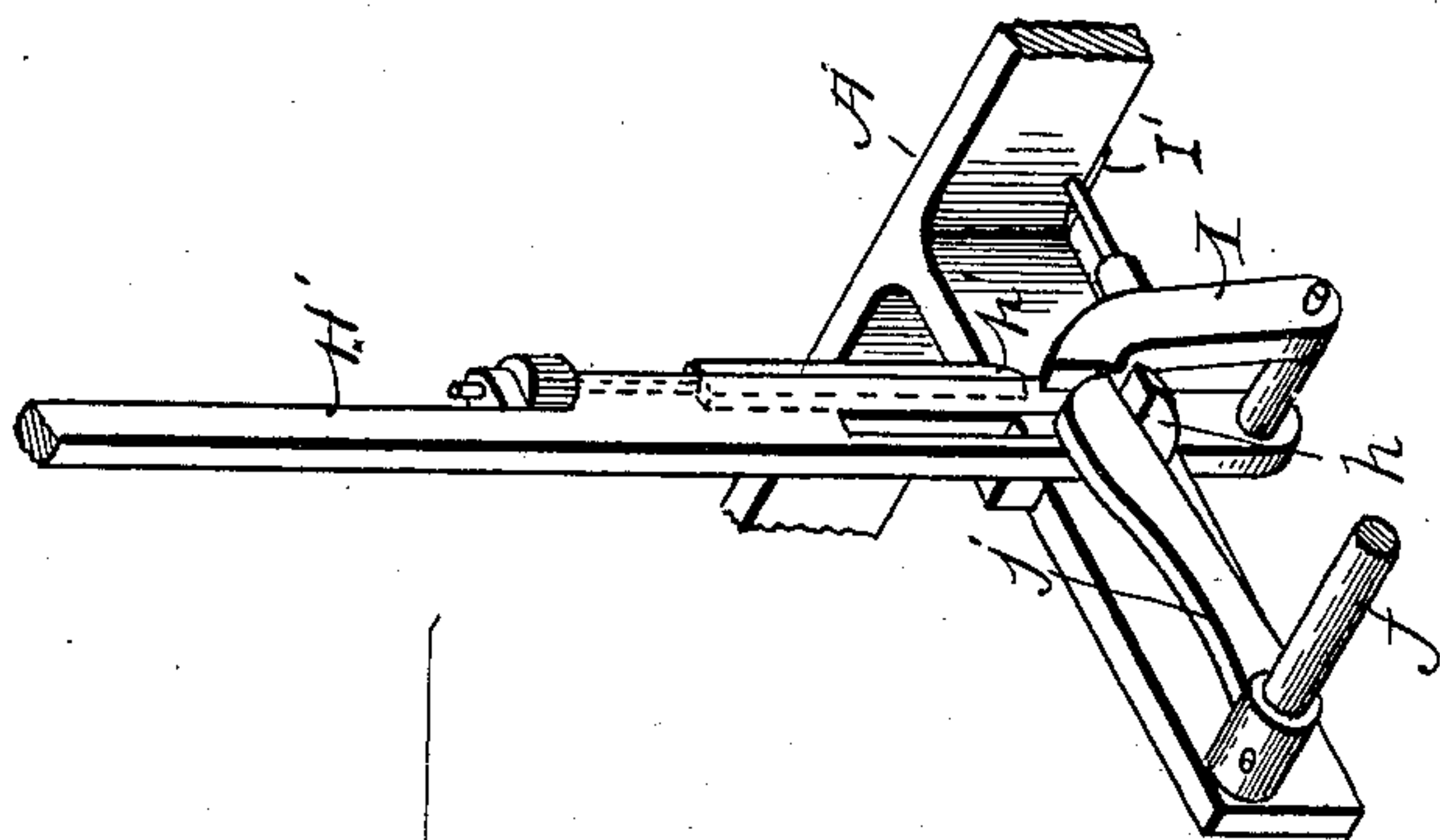


Fig. 4.

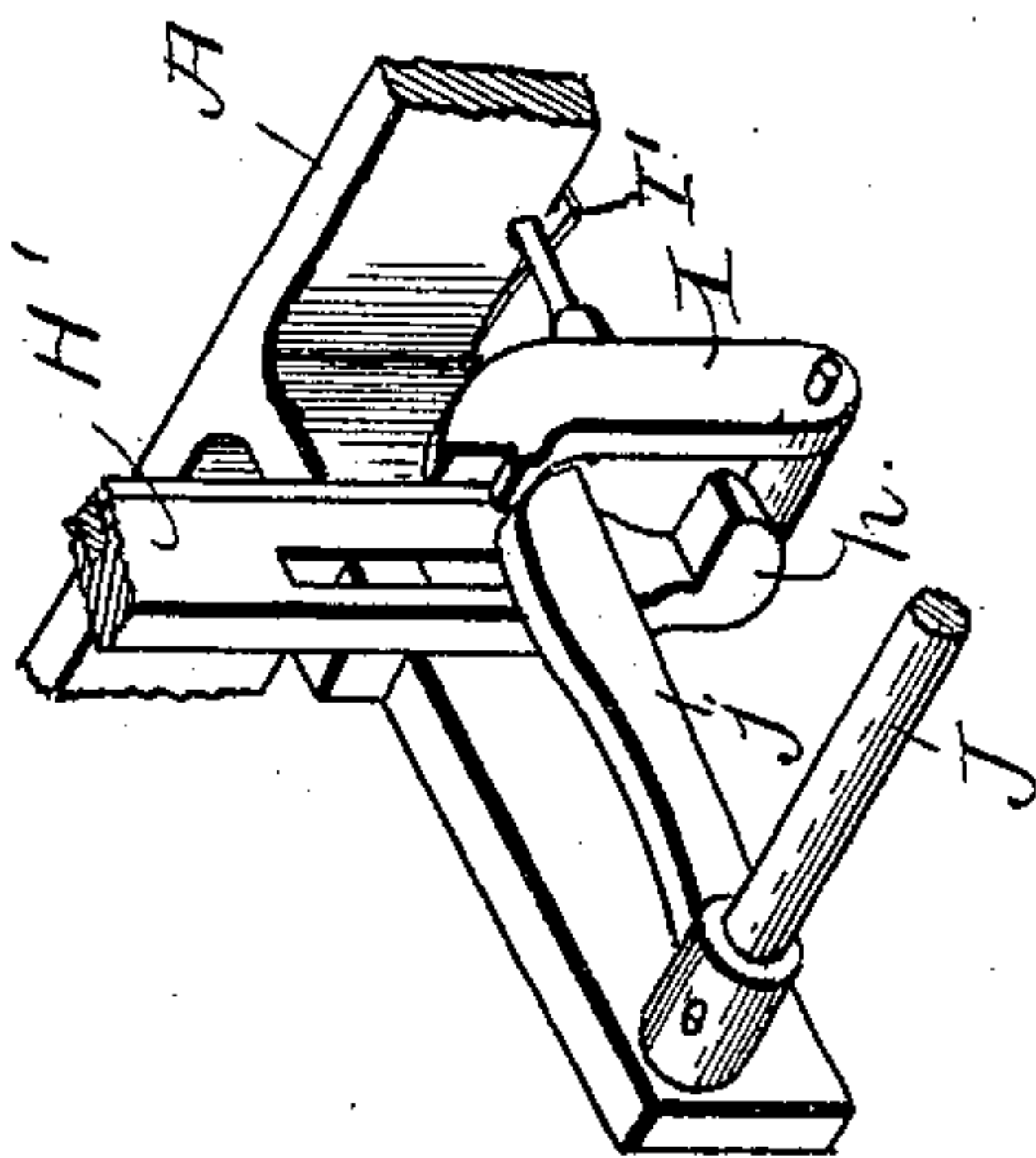
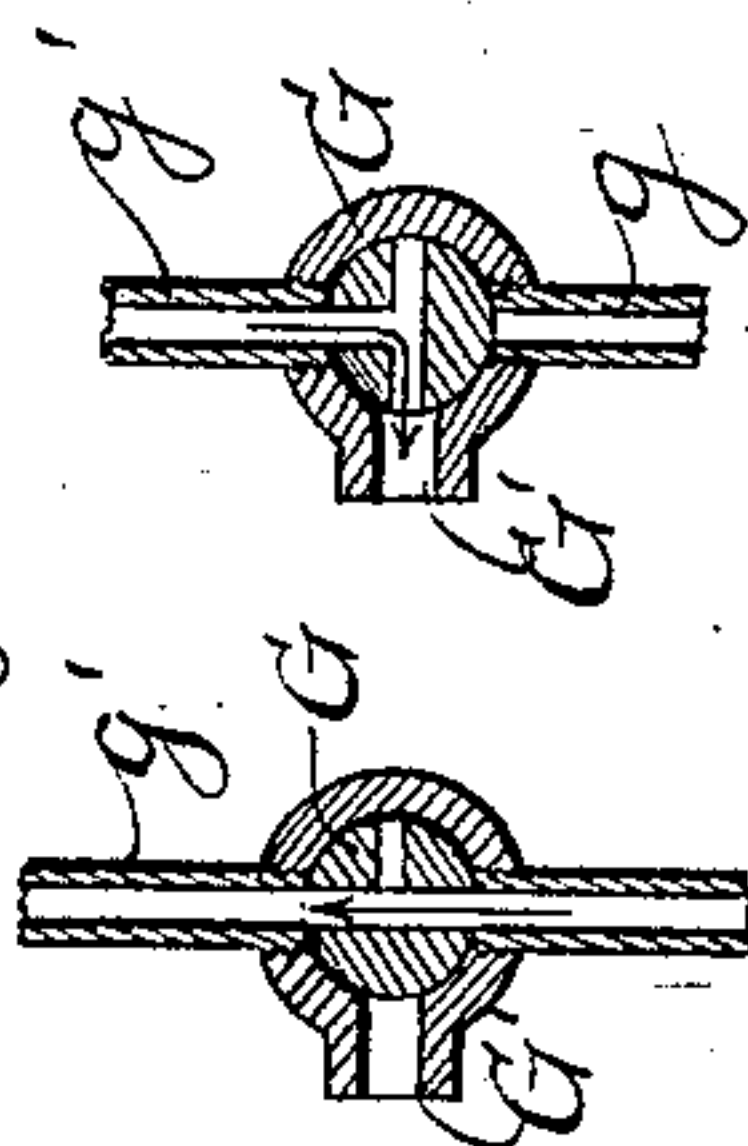


Fig. 6.



Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOSEPH SCHENCK HOOKER LOVETT, OF TRENTON, NEW JERSEY, ASSIGNOR  
TO ISABELLE C. WILSON, SAMUEL K. ROBBINS, AND BARCLAY L. STOKES,  
OF SAME PLACE, EXECUTORS OF SAMUEL K. WILSON, DECEASED.

## HOSE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 682,558, dated September 10, 1901.

Application filed January 4, 1901. Serial No. 42,104. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH SCHENCK HOOKER LOVETT, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have made  
5 a certain new and useful Invention in Hose-Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to  
10 which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 Figure 1 is a plan view of my machine, partly broken away. Fig. 2 is an end view of the same. Fig. 3 is a partial front elevation of the same. Fig. 4 illustrates the devices for insuring the rotation of the mandrel at  
20 the proper time. Fig. 5 illustrates the three-way valve G. Fig. 6 is a detail view of the part I.

This invention has relation to certain new and useful improvements in hose-machines,  
25 and particularly upon the machine of Patent No. 612,766, granted to Samuel K. Wilson, being designed to secure pressure of the rollers upon the hose being wound which will be uniform throughout the length of  
30 such hose, thus avoiding variation in the size of the finished hose, to provide improved automatic mechanism for starting the rotation of the mandrel or hose-pole at the proper time, to provide a yielding support for the  
35 mandrel-driving shaft in order that such shaft may accommodate itself to the yielding roller-bed, and to provide means whereby the rotation of the mandrel or hose-pole may be stopped instantly and the upper or pressure  
40 rollers raised to admit of the removal of creases in the hose-windings.

With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described,  
45 and pointed out in the appended claims.

Referring to the accompanying drawings, the letter A designates the main supporting-frame of the machine, B B the double series of rollers forming the bed or support for the

hose-pole or mandrel Y, and C C the upper  
50 series of pressure-rollers, such rollers being carried by rearwardly-extending spring-arms B' and C', attached to collars B<sup>2</sup> and C<sup>2</sup>, secured by set-screws upon common shafts. The shaft B<sup>3</sup> of the upper series of rollers is  
55 arranged to be rocked in its bearings by means of arms D, extending rearwardly therefrom at intervals, carrying adjustable counterbalancing-weights D' at their end portions and having a connection with upwardly-ex-  
60 tending piston-rod extensions F' of cylinders F, suitably supported from the floor. These cylinders F have at their lower portions pipe connections with a source of compressed air or the like in order that upon admission of  
65 such to the cylinders the pistons F' thereof will be driven upwardly to rock the shaft B<sup>3</sup> and lower the upper series of rollers upon the hose with the proper degree of pressure. This  
70 admission of fluid motive power is accomplished by means of a three-way control and exhaust cock G, connected by pipe g with the source of power and communicating with pip-  
75 ing g' to the cylinders. Upon cutting off the compressed air from such cylinders the shaft B<sup>3</sup> is rocked reversely under the influence of its counterbalancing devices, and the pistons fall in their cylinders, the compressed air es-  
80 caping through exhaust-port G' in the cock G.

It is essential for the proper operation of  
80 the machine that the mandrel or hose-pole shall not commence to rotate until the rollers C C have been brought into operative relation thereto and properly tensioned, and I have devised improved means for this pur-  
85 pose, as follows: H represents a crank at one end of rock-shaft B<sup>3</sup>. H' is a rod extending downwardly from the free end portion of said crank, to which it is pivotally connected, and having a laterally-extending end portion h.  
90 Upon rocking shaft B<sup>3</sup> forwardly rod H' is thus moved downwardly, a cam-surface h' of said rod acting upon a lateral extension i of pivoted catch I to rock the same and release spring-actuated arm j, carried by rock-shaft  
95 J to rock such shaft J and effect the clutch to start the mandrel in rotation at the proper time. Rock-shaft J has for this purpose an



upwardly-extending arm K, having at its free end portion a stud  $k$ , working in a slot  $k'$  of lever L, said lever extending at its upper portion across between the forks and down upon the opposite side of bifurcated frame M, being pivoted at opposite sides thereto. The frame M is provided with bearings for the mandrel-driving shaft M', carrying spur-wheel N and clutch member  $n$  thereof loose thereon and carrying opposing clutch member  $n'$  sliding upon said shaft and rotatably connected thereto. The mandrel-chuck X is also carried by shaft M'. The upper transverse portion of lever L has an upward forked extension embracing clutch member  $n'$  and effecting the clutch therebetween and member  $n$  upon actuation of lever L. The frame M is provided with a central downward extension M<sup>2</sup>, passing through the upper cross-bar A' of the support therefor and through a second cross-bar A<sup>2</sup> of such support. This extension M<sup>2</sup> has a collar  $m$  secured thereto by set-screw  $m'$ , and upon opposite sides of such collar, surrounding the portion of said extension included between said cross-bars, are two coil-springs O and O', bearing at opposite ends thereof upon collar and cross-bars. At the lower end of extension M<sup>2</sup> is pivoted thereto lever P, having pivotal bearing  $p$  in frame A and provided with an adjustable counterbalancing-weight P'. Under movement of the yielding roller-bed B B the mandrel-driving shaft M' will thus move therewith. Spur-wheel N is driven by spur-wheel N' upon shaft N<sup>2</sup>, parallel to the shaft M' and carrying step-pulley N<sup>3</sup>. Shafts N<sup>2</sup> and M' are linked together at  $o o$  to maintain the proper degree of engagement between the teeth of wheels N and N'. For this purpose also the shaft N<sup>2</sup> has bearings in boxes N<sup>3</sup>, provided with sliding bearings in frame A.

The operation is as follows: The hose-pole, with the inner tube or hose-lining thereon, is placed upon the carrying-rollers B B, and the strip of duck or other wrapping having been previously secured at one end to said inner tube air-pressure is admitted to cylinders F by cock G, the upper series of pressure-rollers lowered upon the hose, and when properly tensioned thereon the mandrel is automatically started in rotation to wind such strip of duck, such winding being made smooth and uniform by the absolute accuracy of pressure (so far as is practicable by machinery) secured throughout the length of hose being wound, the pressure from cylinders F being communicated first to a rock-shaft, which acts as an equalizer, and from such shaft to the hose in process of winding. Upon cutting off pressure in the cylinders F the pressure-rollers are raised under the influence of their counterbalancing devices and the mandrel-driving shaft immediately stopped in its rotation through reverse movement of lever L, accomplished by upward movement of arm  $j$  by rod H', such arm being caught and held in its horizontal or raised position by spring-

catch I, the spring thereof being designated by I'. The rapidity with which the mandrel may be stopped in its rotation and the pressure-rollers raised admits of the removal of creases in the hose-windings at the commencement thereof before such creases are covered, when it is too late for their removal.

In a machine of this character it is indispensable that the pressure be not applied direct to the hose, as such causes hard and soft places to appear in the finished hose by reason of the irregularities present in all stock, this having been heretofore the greatest objection to machine-made hose. This defect has been overcome by dividing the pressure and carrying rollers into short sections, each section being carried by a spring-arm connected to common shafts.

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

1. In a machine for winding hose, the combination with the yieldably-supported roller-bed, of the mandrel or hose-pole, the driving-shaft therefor, having a chuck for said mandrel, and means for yieldably supporting said shaft, substantially as specified.

2. In a machine for winding hose, the combination with the yieldably-supported roller-bed, of the mandrel or hose-pole, the driving-shaft therefor, having a chuck for said mandrel, means for yieldably supporting said shaft, the main driving-shaft having a gear-wheel in mesh with a gear-wheel upon said first-named shaft, and means for maintaining the proper degree of engagement of the teeth of said gear-wheels under movement of said mandrel-driving shaft, substantially as specified.

3. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the clutch-operating lever, the spring-actuated rock-shaft, having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, and means for releasing the same to throw such clutch members into engagement, and for restoring the tension of said shaft, through movement of said first-named rock-shaft, substantially as specified.

4. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the clutch-operating lever, the spring-



actuated rock-shaft having an arm engaging a slot of said lever, a spring-catch engaging a second arm of said rock-shaft to maintain the same under tension, a downwardly-extending rod pivoted to a crank-arm of said first-named rock-shaft, having a cam-surface engaging said spring-catch to release said last-named rock-shaft upon downward movement of said rod, said rod having a lower lateral extension for restoring the tension of said shaft, substantially as specified.

5. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the spur-wheel, and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the main driving-shaft having a spur-wheel in mesh with said first-named wheel, the link connection of said shafts, the sliding boxes, in which said main shaft has bearings, and means whereby said clutch members are engaged and disengaged upon actuation of said rock-shaft, substantially as specified.

6. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the driving-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the yieldably-supported bifurcated frame carrying said driving-shaft, clutch members and wheel, the clutch-operating lever pivoted to said frame at opposite sides there-

of, the spring-actuated rock-shaft having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, and means for releasing the same to throw said clutch member into engagement, and for restoring the tension of said shaft, through movement of said first-named rock-shaft, substantially as specified.

7. In a machine for winding hose, the combination of the carrying-rollers, the pressure-rollers, the rock-shaft, the spring-arms carrying said pressure-rollers, and carried by said shaft, the hose-pole or mandrel, the mandrel-driving shaft carrying the spur-wheel and its clutch member normally non-rotatably connected to said shaft, the sliding clutch member rotatably connected to said driving-shaft, the yieldably-supported bifurcated frame carrying said driving-shaft, clutch members and wheel, a counterbalancing device for said frame, the clutch-operating lever pivoted to said frame at opposite sides thereof, the spring-actuated rock-shaft, having an arm engaging a slot of said lever, means for maintaining said spring-actuated shaft under tension, means for releasing the same to throw said clutch members into engagement, and for restoring the tension of said shaft through movement of said first-named rock-shaft, the main driving-shaft, having a spur-wheel in mesh with said first-named spur-wheel, the link connection of said driving-shafts, and the sliding boxes in which said main shaft has bearings, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH SCHENCK HOOKER LOVETT.

Witnesses:

JOHN G. HOWELL,  
DAVID J. BECHTEL.