

No. 885.797.

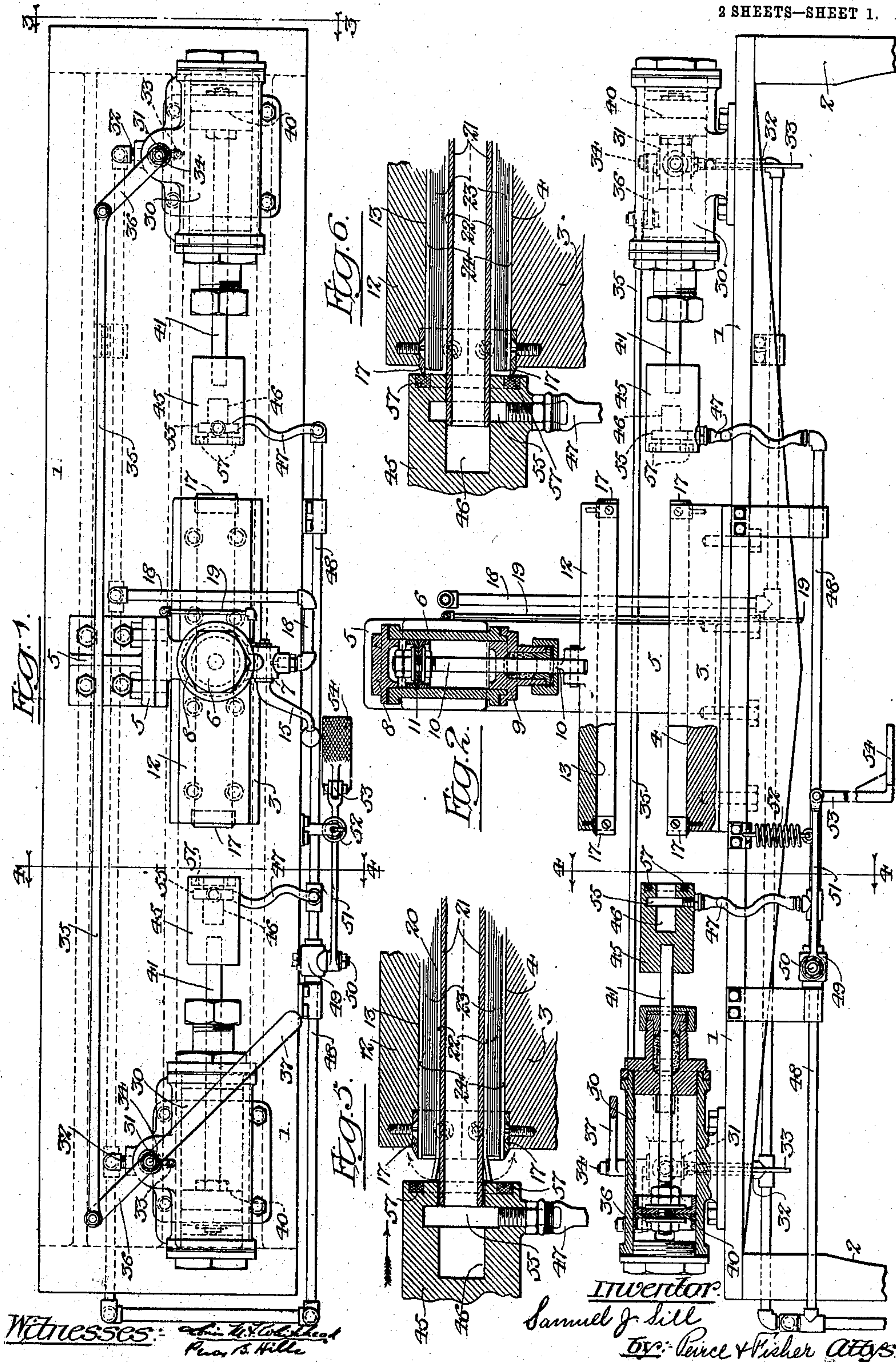
PATENTED APR. 28, 1908.

S. J. SILL.

## APPARATUS FOR CAPPING HOSE SECTIONS.

APPLICATION FILED JAN. 8, 1908.

2 SHEETS—SHEET 1.



Witnesses:- John H. F. Colwellhead  
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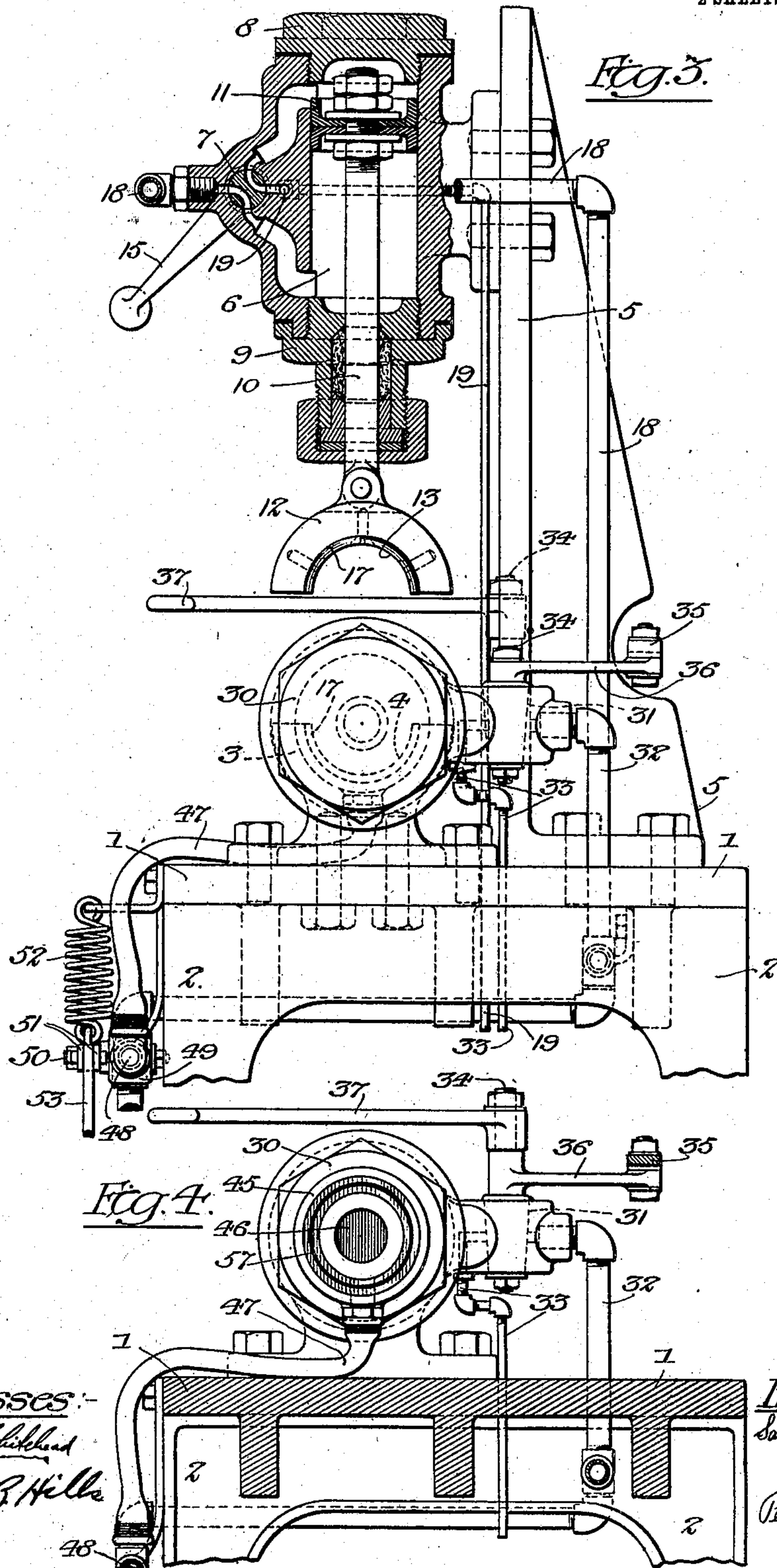
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR CAPPING HOSE-SECTIONS.

No. 885,797.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed January 8, 1908. Serial No. 409,768.

*To all whom it may concern:*

Be it known that I, SAMUEL J. SILL, a citizen of the United States, residing at Buffalo, county of Erie, and State of New York, have  
5 invented certain new and useful Improvements in Apparatus for Capping Hose-Sections, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings,  
10 forming part of this specification.

The present invention has for its object to provide a machine whereby the ends of rubber hose sections, such for example as the  
15 hose sections commonly employed in railway air brake systems, may have their ends capped or sealed so as to prevent the access of moisture to the textile fabric within the body of the hose.

The invention consists in the features of  
20 novelty hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a plan view of  
25 the improved machine. Fig. 2 is a side elevation thereof with parts shown in section. Fig. 3 is an end view of the machine. Fig. 4 is a cross section on lines 4—4 of Figs. 1 and 2. Figs. 5 and 6 are enlarged detail sections  
30 illustrating the operation of the machine.

The bed 1 of the machine is supported upon suitable legs 2. Upon the top of the bed 1 of the machine and preferably about its center is placed a block 3 having a semi-  
35 cylindrical groove or channel 4 extending from end to end thereof. At one side of the machine bed rises the vertical standard 5, the flanged base of which is bolted to the bed-plate 1. Adjacent the top of the standard 5  
40 is bolted the air cylinder 6, this cylinder 6 being shown as provided with a valve chamber 7 at the front side thereof. The upper and lower ends of the cylinder 6 are closed respectively by the caps 8 and 9, the lower cap  
45 9 being perforated to permit the passage therethrough of the stem 10 that passes downwardly from the piston 11 within the body of the cylinder. The bottom cap 9 is provided with a suitable stuffing box through  
50 which the piston stem 10 passes. To the lower end of the piston stem 10 there is connected a block or cap 12 that is formed with a semicylindrical cavity 13 extending from end to end thereof and corresponding to  
55 the cavity 4 in the subjacent block 3. The

cavities 4 and 13 in the blocks 3 and 12 are of such size as to correspond substantially to the diameter of the hose sections to be capped.

The cylinder 6 is provided with a valve of suitable construction whereby compressed  
60 air may be admitted to either side of the piston 11 and a handle 15 extends from this valve in convenient position to be grasped by the operator. At each end of the cavity 4 of the block 3 and similarly at each end of the  
65 cavity 13 of the block 12 is fixed a semi-circular knife 17 the purpose of which will hereinafter more fully appear. Compressed air will be admitted to the cylinder 6 by an air pipe 18 leading to the valve chamber 7 and  
70 air will exhaust from the valve chamber 7 through a pipe 19. The blocks 3 and 12 are designed to hold the sections of hose while being capped and trimmed and when a hose  
75 section 20 with the mandrel 21 on which it is mounted has been placed within the cavity 4 of the lower block 3, the operator by shifting the handle 15 will cause compressed air to  
80 so enter the cylinder 6 as to force downward the piston 11 until the block 12 closes over the hose section, as clearly shown in Figs. 5 and 6 of the drawings. The capping and trimming of the ends of the hose section will then be effected by mechanism and in the  
85 manner next described.

Upon the top of the bed plate 1 and at each end of the machine is mounted an air cylinder 30 to the valve chambers 31 of which leads a pipe 32 for the admission of compressed air or like motive fluid. From  
90 each of the valve chambers 31 will also lead an air exhaust pipe 33. There is a valve of familiar construction within each of the valve chambers 31 such valve being adapted to control the passage of compressed air to the  
95 opposite ends of its respective cylinder. The valve stems 34 of these air controlling valves are preferably connected together as by means of a link 35 that is pivotally united to the ends of the arms 36 which project laterally from the valve stems 34. One of the  
100 valve stems 34 is provided with a handle 37 extending forwardly into convenient position to be grasped by the operator. Within each of the cylinders 30 is a piston 40. The  
105 stem 41 extends through a stuffing box in the cylinder cap and has fixed to its outer end a block or plunger 45 that is formed with a chamber 46. The chamber 46 of each of the blocks or plungers 45 is connected by a flexi-  
110



ble pipe 47 with the air supply pipe 48. In this air supply pipe 48 is placed a valve chamber 49 that contains a valve which serves to control the passage of air to the chambers 46 of the blocks or plungers 45. The stem 50 that projects outwardly from the valve chamber 49 has connected thereto an arm 51 that is held in normal position by a coil spring 52, the lower end of which is connected to the arm 51 while its upper end is connected to the underside of the table 1. To the outer end of the arm 51 is pivotally connected the upper end of a treadle rod 53, the lower end of which is provided with a treadle 54 in convenient position to be pressed by the operator's foot. As shown, each of the chambers 46 of the blocks or plungers 45 is formed with an enlarged cylindrical groove 55 although this is not essential; and the outer end of each of the blocks or plungers 45 is recessed to receive a ring of Babbitt metal 57 with which will contact the edges of the knives or cutters 17, these Babbitt metal rings serving to prevent the dulling of the knives. The chambers 46 are of sufficient diameter to receive the ends of the mandrel 21 when the hose section and its mandrel have been placed in position to be capped as hereinbefore described.

By reference more particularly to Figs. 5 and 6 of the drawings, it will be seen that when a hose section has been formed and is ready to be capped it comprises an inner tube 22 of unvulcanized rubber, a body 23 of frictioned duck or woven fabric and an outer tube or cover 24 of unvulcanized rubber, both the inner and outer tubes 22 and 24 being slightly longer than the body portion 23 and the inner tube 22 being shown as longer than the outer tube 24. When the hose section and the mandrel whereon it is mounted have been placed as hereinbefore described within the cavity 4 of the block 3 with the mandrel 21 and the inner and outer tubes 22 and 24 projecting beyond the semi-circular knives 17 at the ends of the block 4, the operator by shifting the handle 15 will admit air to the upper end of the cylinder 6 thereby causing the block 12 to close down over the hose section resting upon the block 3. He will then shift the handle 37 so as to admit air to the outer ends of the cylinders 30 thereby causing the blocks or plungers 45 to move towards the ends of the hose section. As the ends of the mandrel 21 enter the chambers 46 in the blocks 45, the operator will depress the treadle 54 thereby shifting the valve within the chamber 49 so as to permit compressed air to pass through the pipes 47 to the chambers 46. The compressed air thus passing into the chambers 46 will escape through the slight annular space between the ends of the mandrel 21 and the wall of the chambers 46 and as the air thus escapes it will enter the ends of the inner tube 22 with such force as

to turn or flare outwardly the ends of the inner tube, which being of soft unvulcanized rubber are easily expanded, (see Fig. 5). As the ends of the inner tube are thus flared outward, the blocks or plungers 45 complete their inward movement and in so doing complete the folding over of the ends of the inner tube across the ends of the fabric body 23 of the hose and into contact with the outer soft rubber tube 24. As the blocks or plungers 45 reach the extreme of their inward movement, the semi-circular knives 17 cut or trim off the outwardly flared portions of the inner tube which project beyond the diameter of the knives; the completion of the inward movement of the plungers leaving the knives 17 in contact with the Babbitt metal blocks 57 of the plungers, (see Fig. 6). The operator will then release the pressure of his foot from the treadle 54 so as to permit the spring 52 to close the valve within the chamber 49 and cut off further admission of air to the chambers 46 and he will also shift the hand levers 15 and 37 so as to cause the compressed air within the cylinders 6 and 30 respectively to lift the block 12 and move outward the plungers 45. The mandrel 21 with the hose section thereon will then be removed and it will be found that the outer end of the hose section will be securely capped so as to protect the fabric body 23 against access of moisture thereto. It will be understood of course that when the inner tube 22 has been flared outward and pressed over the ends of the fabric body 23, it will be retained in such position because of the adhesive character of the soft rubber. The hose section is then in condition to be placed upon a vulcanizing mandrel and to be wrapped and submitted to the vulcanizing operation.

It is obvious that the details set forth may be varied without departure from the essentials of the invention.

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

1. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, and a movable block or plunger having an annular end to admit the mandrel and compress the rubber at the end of the hose.

2. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted and a movable block or plunger having a chambered end to admit the mandrel and compress the rubber at the end of the hose and means for admitting air under pressure to the chambered end of the block or plunger.

3. In a machine for capping rubber hose, the combination with clamping means for holding the hose and the mandrel whereon it



is mounted and a movable block or plunger having an annular end to admit the mandrel and serving to compress the rubber at the end of the hose and means for spreading outwardly the inner rubber tube over the end of the hose.

4. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, a knife at the end of said block or plunger, a block at the end of said clamping means and a movable block or plunger to admit the mandrel and compress the rubber at the end of the hose against said knife.

5. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, a knife at the end of said clamping means, a plunger having a chambered end to admit the mandrel and means for admitting air under pressure to said chambered end of the plunger in order to spread outwardly the inner tube of the hose across the edge of the knife.

6. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, said means comprising separable parts, a sectional knife carried at the end of said clamping means and a movable block or plunger having a chambered end to admit the mandrel and having in its end a cavity provided with a softer filling to contact with the knife as the hose is capped.

7. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, a circular knife at the end of said

clamping means, a movable block or plunger having a chambered end to admit the mandrel, an air pipe for admitting compressed air to the chamber of said block or plunger and valve mechanism for controlling the passage of compressed air to said chamber.

8. In a machine for capping rubber hose, the combination of a stationary block and a movable block to cooperate with said stationary block in holding the hose, means for shifting said movable block towards and from the stationary block, a block or plunger movable in the direction of the length of said stationary block and means for moving said block or plunger towards and from the ends of said stationary and movable blocks.

9. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, movable blocks or plungers adjacent the ends of said clamping means, means for shifting said blocks or plungers back and forth and means for admitting compressed air to the chambered ends of said blocks or plungers.

10. In a machine for capping rubber hose, the combination of clamping means for holding the hose and the mandrel whereon it is mounted, knives at the ends of said clamping means, chambered blocks or plungers movably mounted adjacent the ends of said clamping means and means for admitting compressed air to said chambered blocks or plungers.

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