2 Sheets--Sheet 1.

JOHN MURPHY.

Improvement in Machine for Making Rubber Hose.

No. 125,479. Patented April 9, 1872.

Fig 1

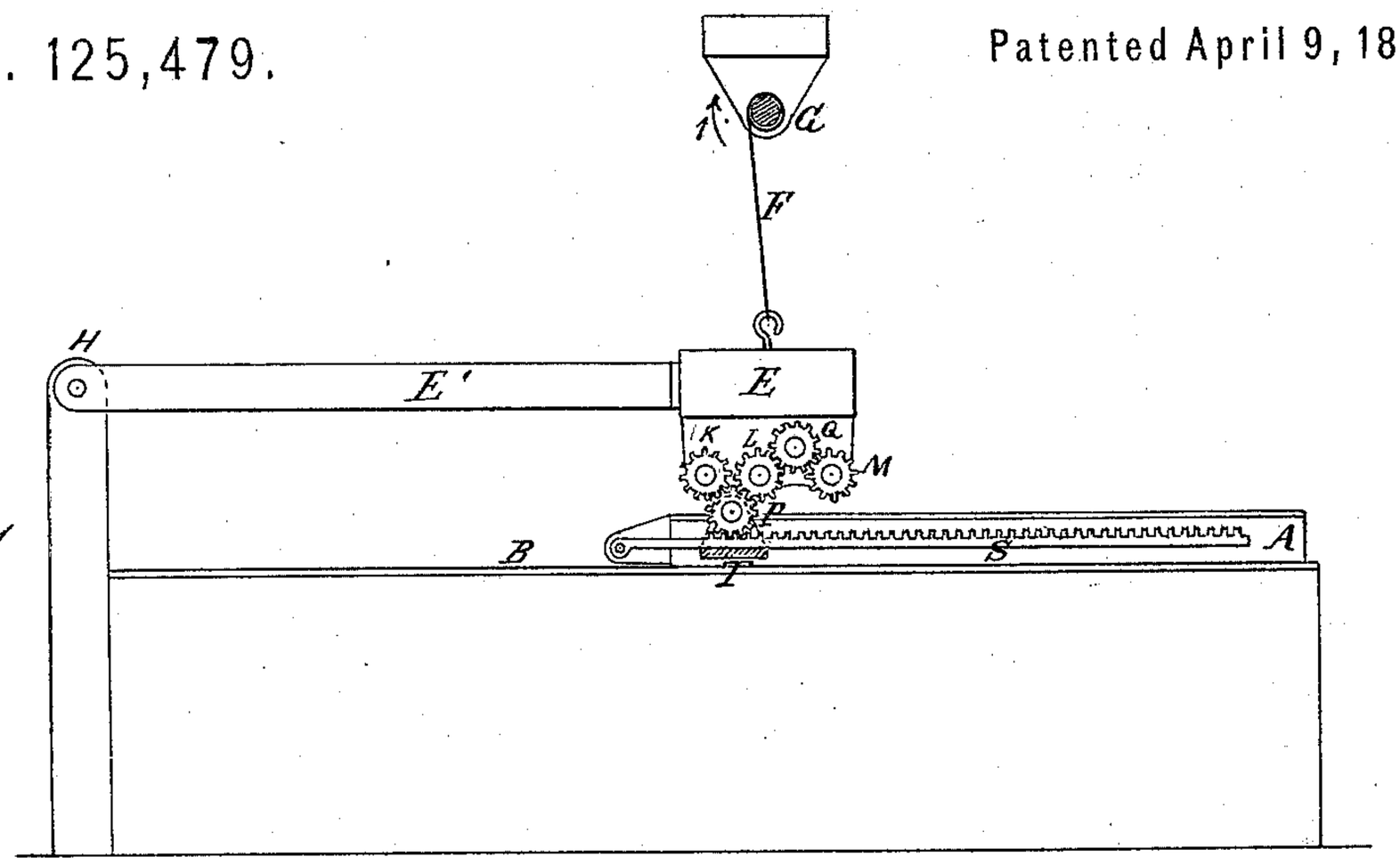


Fig 2

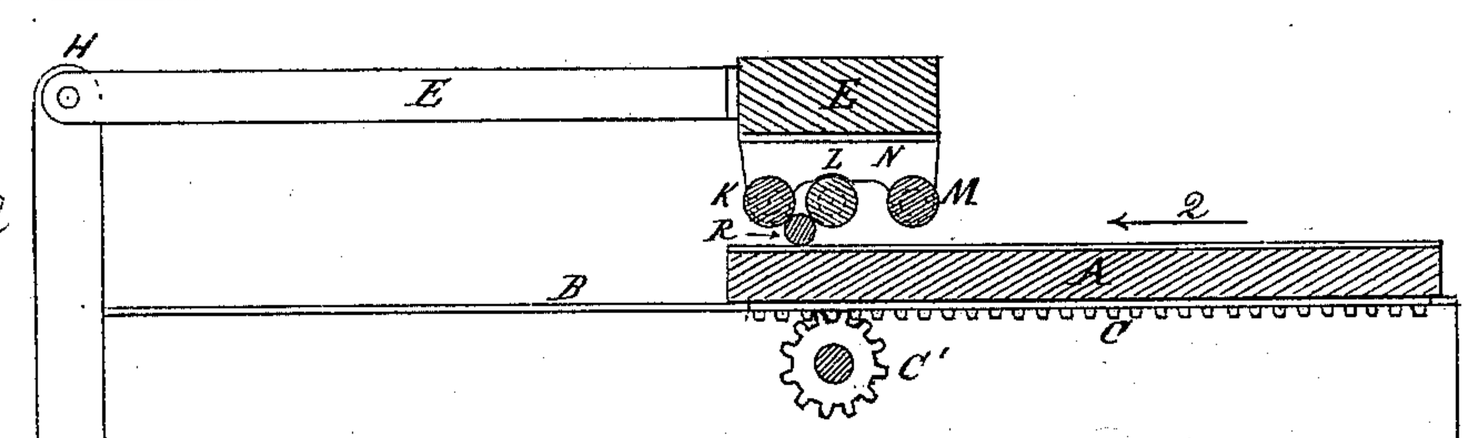
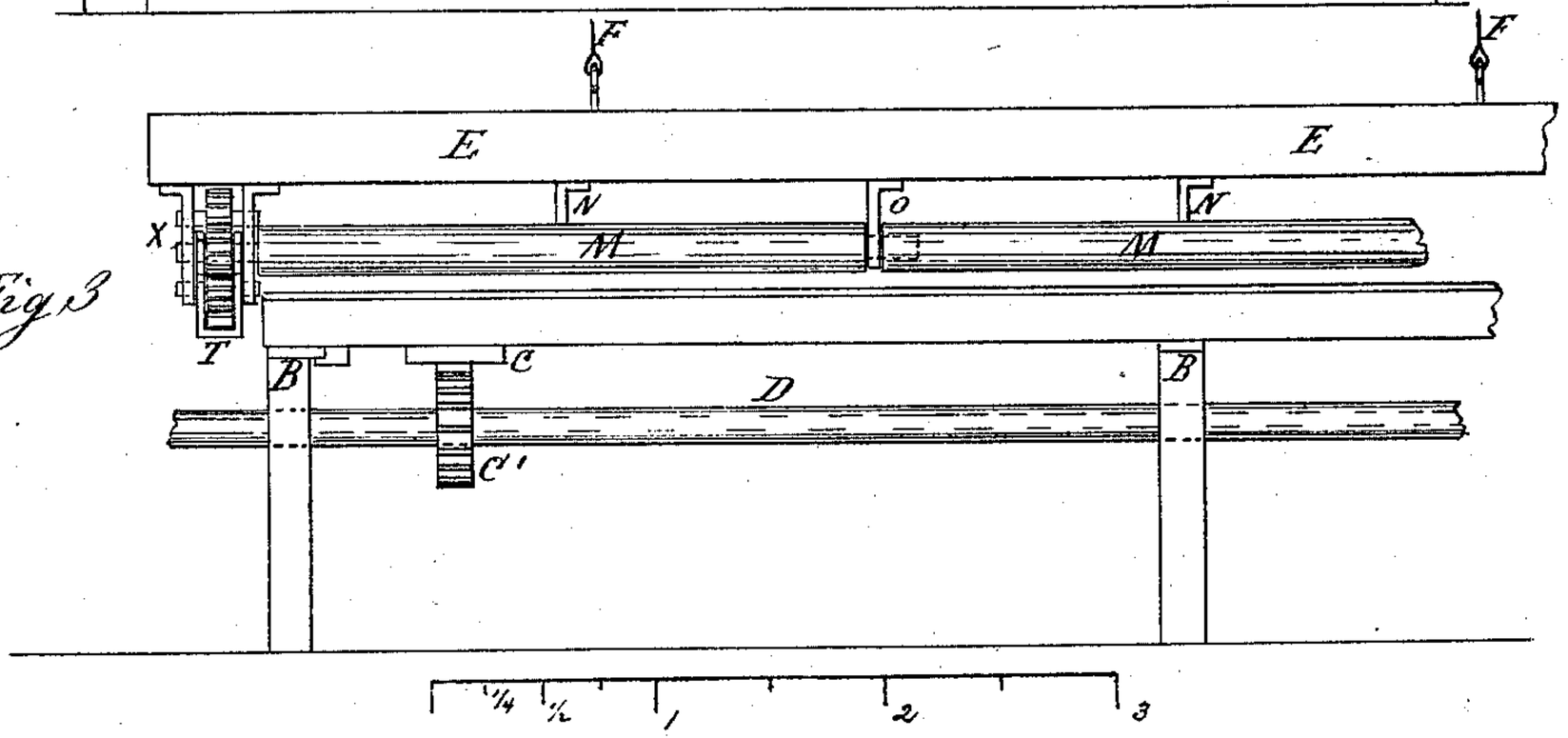


Fig 3



Scale of feet.

Witnesses.
Albert H Hark.
William Lewis

Inventor
John Murphy

2 Sheets--Sheet 2.

JOHN MURPHY.

Improvement in Machine for Making Rubber Hose.

No. 125,479. Patented April 9, 1872.

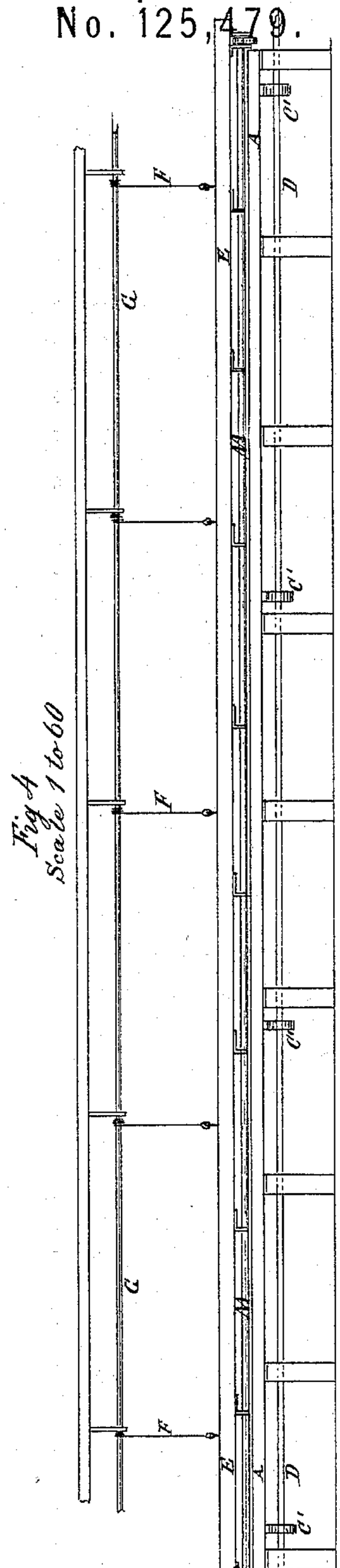


Fig 4
Scale 1 to 60

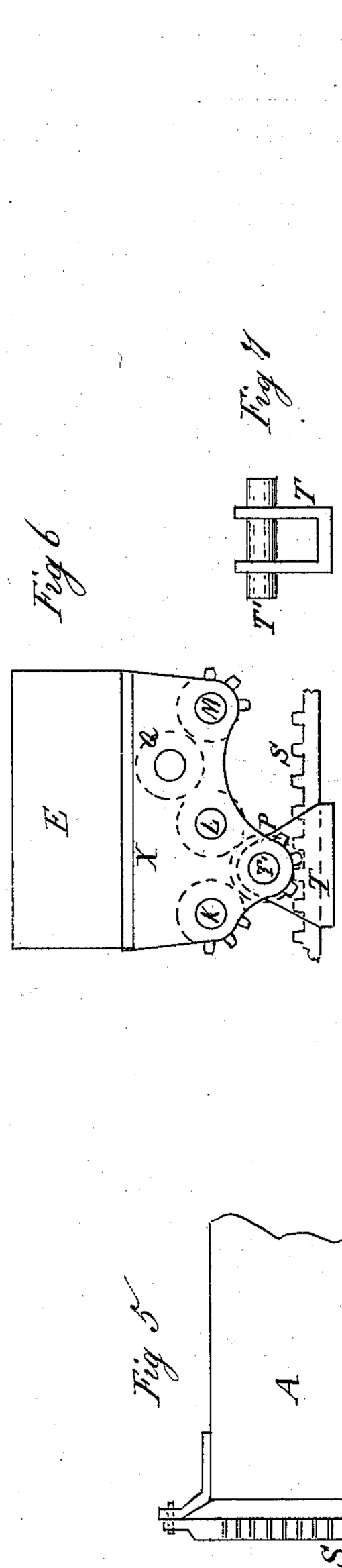


Fig 6

Fig 7

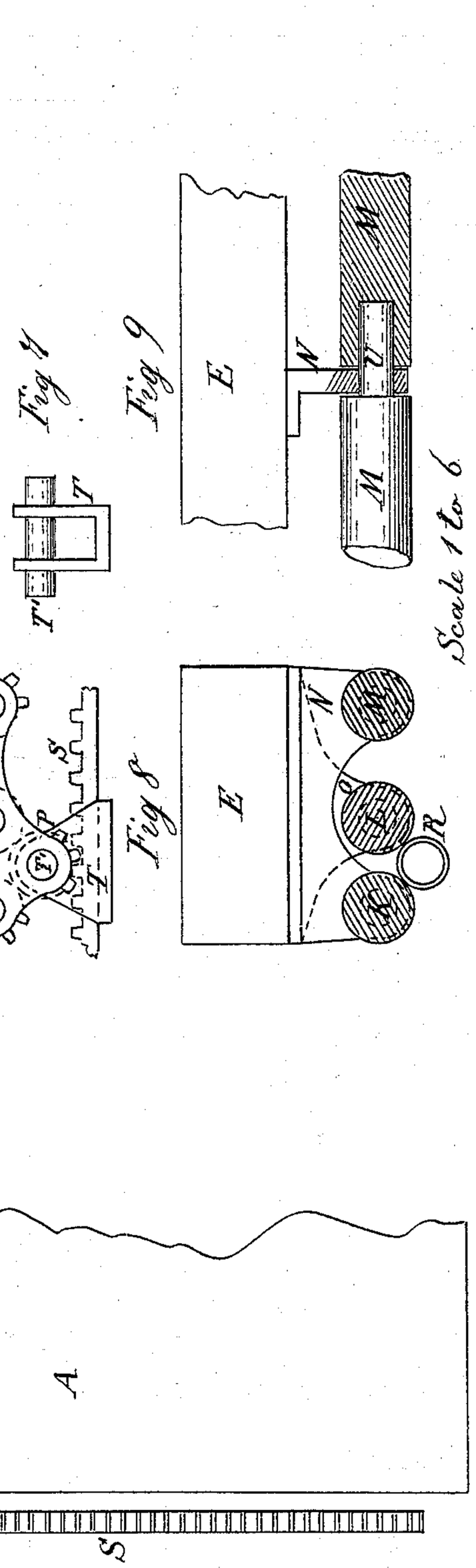


Fig 9

Scale 1 to 6

Fig 5

Witnesses
Albert H Hook
William Lewis

Inventor.
John Murphy

125,479

UNITED STATES PATENT OFFICE.

JOHN MURPHY, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR MAKING RUBBER HOSE.

Specification forming part of Letters Patent No. 125,479, dated April 9, 1872.

I, JOHN MURPHY, of the city, county, and State of New York, have invented a certain Improved Machine for Making Rubber Hose, of which the following is a specification:

Description of the Drawing.

Figure 1 represents an end view of the machine, the end bearing X being removed; Fig. 2, a vertical transverse section of the machine; Fig. 3, a front view, one end only being shown, the other end being of the same construction; Fig. 4, a general view of the machine on a small scale; Fig. 5, a plan view of an end portion of the sliding table *a*, showing the manner in which the rack S is connected to the table A; Fig. 6, an end view of the beam E, the end bearing of the rollers K, L, and M, and the swivel T, which supports the rack S; Fig. 7, a front view of the swivel detached; Fig. 8, a vertical transverse section of the beam E and the rollers K, L, and M; Fig. 9, a front view of a portion of the beam E and its rollers, showing the manner of coupling the rollers.

General Description.

A is a table as long as the mandrels on which the hose is to be made, say about fifty-two feet, more or less, and about three feet wide, its top side being covered with a sheet of rubber or other elastic material over its whole length and width. This table is made to slide back and forth in a lateral direction on a number of ways, B, by a series of racks and pinions, the racks C being fastened to the bottom side of the table, and the pinion C^1 upon a shaft, D, at equal distances from each other, which shaft is situated below the table and extends through the entire length of the machine, and is supported by a number of bearings. This shaft receives a revolving motion from some outside gearing not shown in the drawing, in such a manner as to cause the table to slide back or forth, or stand still at the will of the operator. Above the table there is a beam, E, extending over the entire length of the table and a short distance beyond the ends thereof. It is hung on a series of chains or ropes, F, which are made to wind upon a shaft, G, so that when the shaft G is turned in the direction of the arrow 1 by any suitable mechanism not shown in the drawing, the beam E will be raised, and by turning the shaft in the opposite direction the said beam will be lowered. To prevent this beam E from moving laterally there are a series of arms, E′, attached thereto and extending backward to some fixed point of the framing of the machine, or of the wall of the building in which the machine stands, and there these arms are pivoted to pins H. Thus the said beam E is made capable of being raised and lowered, and prevented from being displaced laterally. To the bottom side of the beam E there are attached three lines of rollers, K, L, and M, supported in a series of bearings, N and O, which are distributed at equal distances over the whole length of the beam, the said lines of rollers running the entire length of the table A, and beyond the ends of the table they are geared together, as clearly shown in Figs 1 and 6, by intermediate gear-wheels P Q; the wheels P connect the rollers K and L, while the wheels Q connect the rollers L and M together. Thus it is evident that, when the rollers are caused to turn, they will all turn in the same direction.

To make a hose on a mandrel, the table A is brought forward to a position as shown in Figs. 1 and 2; the mandrel R is placed upon the table parallel to the lines of rollers, and so that when the beam E and its system of rollers is lowered down upon the mandrel the said mandrel will be right in the center, between two rollers. If the mandrel be of small size it must go between the rollers K and L, as shown in Figs. 2 and 8, and if the mandrel be of large size it must go between the rollers L and M, which are further apart from each other than the rollers K and L. After the rollers have been lowered upon the mandrel a strip of cloth of the proper width and length is placed upon the table in front of the mandrel, and, the machine being set in motion, the table slides backward in the direction of the arrow 2, which causes the mandrel to revolve and to wind up the cloth, which is done under the pressure of the weight of the beam and any additional weight which it may be necessary to add thereto. The rollers, which bear upon the mandrel, will be caused to revolve by the friction against the mandrel, but in order to avoid all slipping and compel the rollers to start simultaneously with the table, it is advisable to revolve the said rollers by positive gearing, and this may be effected in the following manner: There are two racks, S,

which gear into the gear-wheels P, one at each end of the machine, and which are held in gear with the said wheels P by swivels T hung on pins T′, which form the pivots of the wheels P, as clearly shown in Fig. 6. The rear end of these racks are hinged to strong iron brackets fastened to the rear corners of the table A, one at each end thereof. Thus it will be seen that the rollers will be set in motion on the very start of the table in either direction, and the racks being hinged at their rear ends to the table, will accommodate themselves to any position of the beam E and its rollers, without going out of gear, whether the same be elevated or lowered. As the three lines of rollers must necessarily be of small diameter—say two inches—and about fifty-two feet in length, it is absolutely required to make each line of short sections, and to support each section in bearings, to enable the rollers to withstand the pressure. This may be effected in the following manner: I make each section of two-inch round iron, about four feet or less long, turn one end of it down to form a pin, U, and bore a socket-hole into the other end, which in size must correspond with the diameter of the pin U at the other end, so that the pin of one section may fit into the socket of the next section, where it may be fastened by any suitable means. Between each two sections there is a bearing, N, introduced, the journal being the pin U, and these bearings must be so shaped as not to project beyond the surface of the rollers in those places, where they would be likely to come in contact with the mandrel R. All this is shown plainly in Figs. 8 and 9.

I do not limit myself to the above-described manner of forming the various lines of rollers, nor to the described manner of arranging and suspending the beam E and its system of rollers, nor to the necessity of having three lines of rollers, as two lines may be sufficient by making one line adjustable to the size of mandrel that is to be used; but

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine constructed substantially as described, so as to revolve a mandrel between a sliding table and two lines of rollers, as and for the purpose set forth.

2. A mechanism for transmitting a positive revolving motion to the lines of rollers from the sliding motion of the table, consisting of the rack S, gear-wheel P, and swivel T, or their equivalents, substantially as and for the purpose herein specified.

3. A system of rollers, K L M, capable of being raised and lowered, and having a positive revolving motion transmitted to them by the sliding table.

JOHN MURPHY.

Witnesses:

ALBERT H. HOOK,

WILLIAM LEWIS.