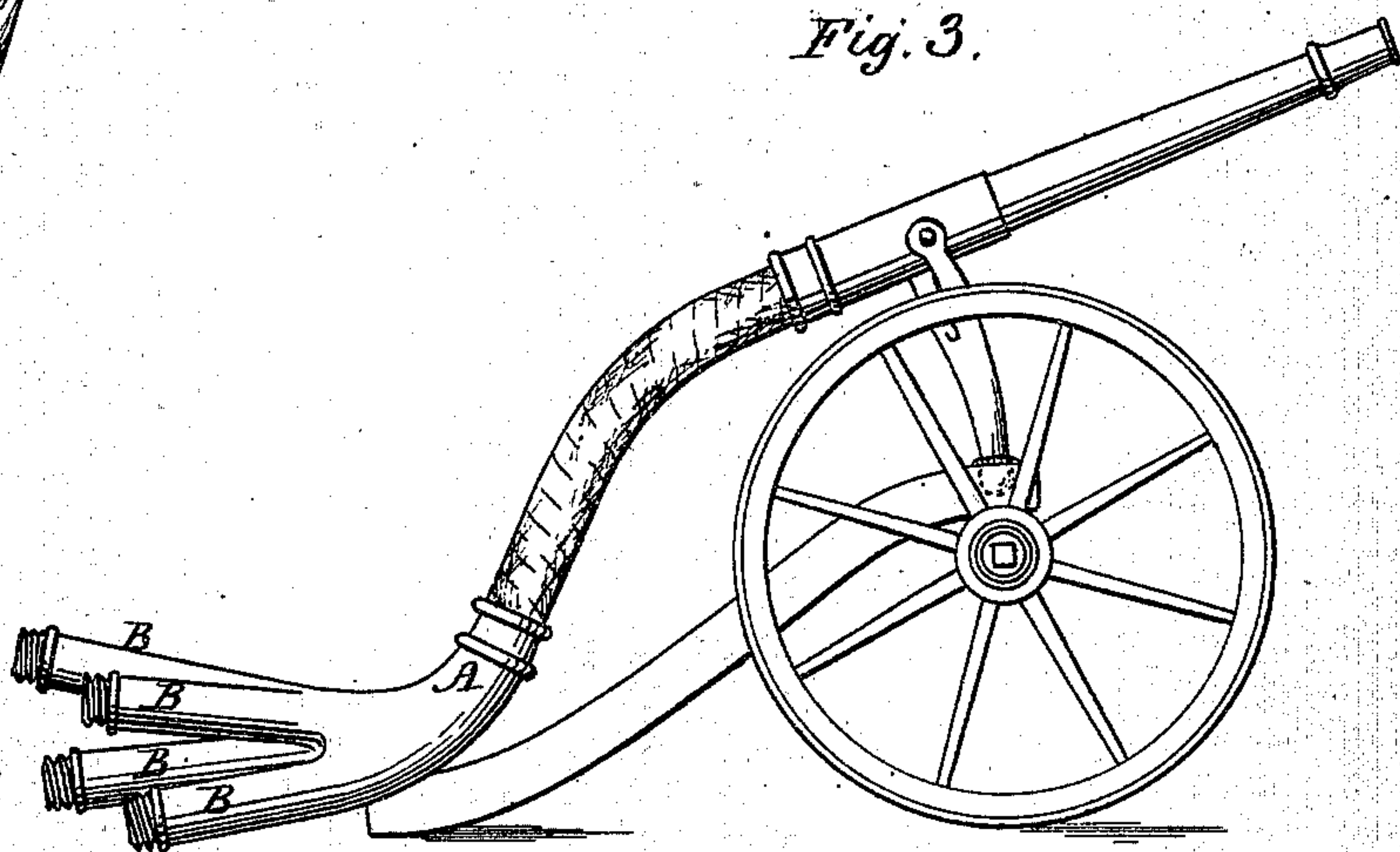
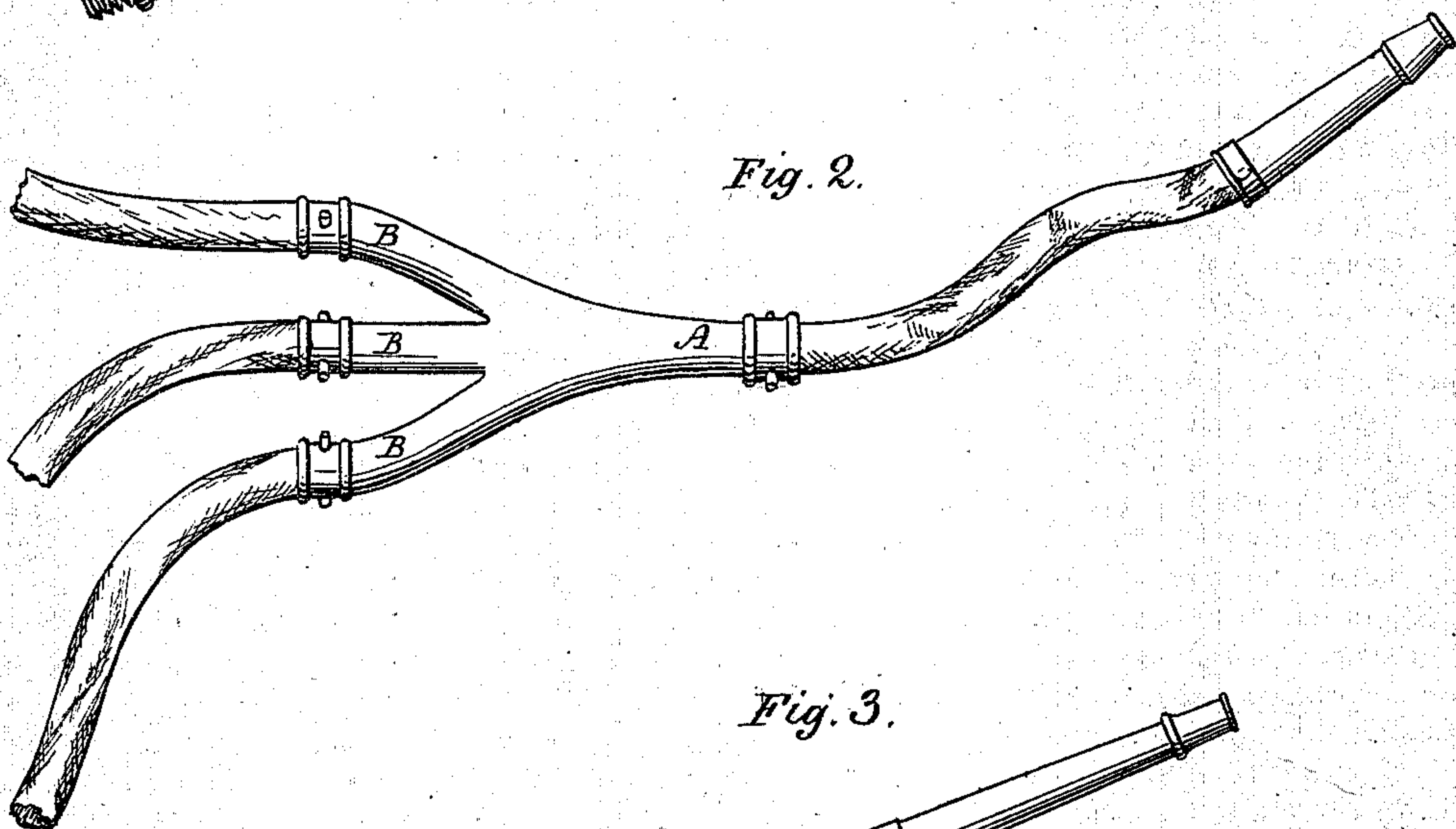
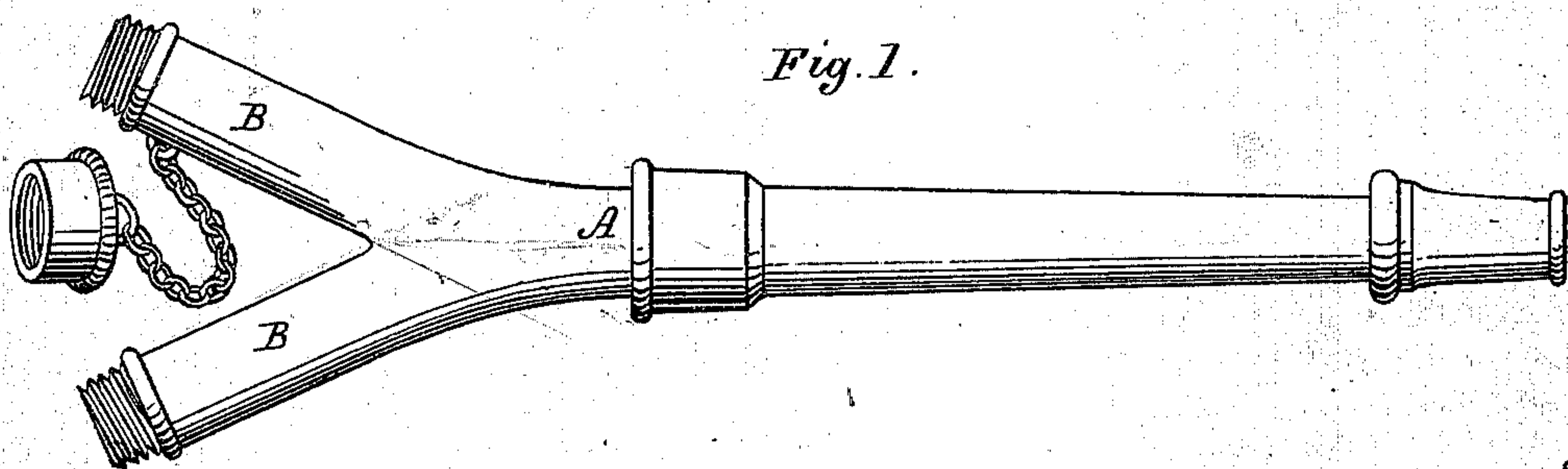


M. CRONIN.  
Compound Hose-Pipes.

No. 139,550.

Patented June 3, 1873.



Witnesses  
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# UNITED STATES PATENT OFFICE.

MARTIN CRONIN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN COMPOUND HOSE-PIPES.

Specification forming part of Letters Patent No. **139,550**, dated June 3, 1873; application filed December 11, 1872.

*To all whom it may concern:*

Be it known that I, MARTIN CRONIN, of the city of Washington, in the District of Columbia, have invented a certain new and useful Compound Hose-Pipe, of which the following is a specification:

The object of my invention is to provide a means whereby two or more fire-engines or forcing-pumps, while operating at their maximum rate of speed, and with their fullest water-throwing capacity, can be made to unite upon one column of water, and throw a single stream of greater volume, and to a greater height or distance, than either one of the engines or pumps can possibly throw if operated singly. My invention consists in constructing the hose-pipe with two or more branches at its base or butt, which enter the main pipe at an easy angle, and in giving to the main pipe any required area of opening, preferably but little, if any, greater than that of either of the entering-pipes; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear and true description of pipes embodying my invention.

Figure 1 represents one of my pipes, provided with branches for connection with the two lines of hose. Fig. 2 represents another of my pipes, provided with a triple branch, and connected with three lines of delivery-hose, and one section of discharge-hose, and a hose-pipe of the usual and ordinary construction. Fig. 3 represents one of my mammoth compound hose-pipes mounted on wheels.

A denotes the main barrel of my compound hose-pipe, and B, in each instance, denotes one of the several branches to which lines of hose are to be attached. The end of each branch is provided with ordinary coupling-connections, and the end of the main pipe is provided with similar connections, which are adapted to receive either the ordinary coupling, or the usual and ordinary kinds of hose pipes or nozzles. The interior surface lines of the branches should merge gradually with the interior lines of the main pipe, which should, preferably, be tapered gradually from the junction with the branches to within a short distance of its delivery end, in order to secure a gradual increase in the compression

of the water. The entire interior of the pipe should be made as smooth as possible, so as to avoid creating undue friction. Each of the branches, except one, is provided with screw-caps, accurately fitted thereto, in order that one, two, or more lines of hose may be connected and used when other branches are not required.

The special uses and operation of my improved hose-pipe are obvious; as, for instance, let us assume that at a fire, two engines of a certain equal capacity are in service, and an emergency arises requiring the discharge of a stream of greater volume, which is to be delivered at a higher point than either engine, singly, can possibly discharge or reach. The lines of hose from both engines, in each case, are to be united to the compound hose-pipe, and without undue strain of either engine, or of either of the two lines of hose, the extraordinary result is attained; and then, should the crisis be passed, the hose may be detached from the compound pipe, and the ordinary hose-pipes may be employed. Should it be requisite, at any time, to employ the compound stream from the interior of a building, or from a ladder, or other elevated position, a section or more of strong hose will be connected with the compound hose-pipe, and provided with the ordinary nozzle. When fires occur at a great distance from the immediate water-source, long lines of hose are necessitated, rendering it quite impossible to deliver water at the fire with effective force. Whenever, with a long line of hose, any extraordinary effort is attempted, it is not unusual for one or more breaks or ruptures to occur, necessitating change and occasioning loss of time, when every second may be of great value. Every fire-department having new hose supplied only as fast as old sections prove worthless, will always have some hose which cannot be relied upon, even for ordinary service; and, at the same time, will have some which can safely withstand any practical test. When extraordinary effort is to be made at a great distance from the engines, one or more long lines of hose will be laid from each engine to a point adjacent to the scene of action, and then merged into a single line of hose, of superior quality and unusual capacity to resist pressure,



thence to the delivery. When weak hose is not to be depended upon in long lines, even for ordinary working, two separate lines can be laid from the same engine and merged into one, as already described, adjacent to the point of delivery. There will be, of course, more or less back pressure, resulting from uniting the two streams into one; but it is not sufficient to practically effect the desirable results, or depreciate their value.

Six engines, or even more, may be arranged to operate in unison for the throwing of a mammoth stream to a great height, by, for instance, uniting every two engines to a compound pipe, and then uniting the three pipes by separate lengths of stronger hose to another triple-branch compound pipe provided with a line of hose of still greater strength, having a delivery-pipe and nozzle.

When a large volume of water is being discharged through a mammoth hose-pipe, it will be practically impossible to manipulate it by the usual means. I have, therefore, devised a carriage for supporting mammoth pipes, which is illustrated in Fig. 3. An axle with wheels, and a carriage corresponding generally with the light artillery-carriage, is provided with a universal-jointed trunnion, on which the delivery-pipe is mounted. At the base of the limber a branch pipe is permanently mounted, with its branches opening to the rear, for connection with hose. The forward end of the branch pipe is connected, by a curved section of very flexible and very strong hose, to the base of the delivery or nozzle pipe. The delivery-pipe, on its double trunnion and vertical pivot, can readily be made to sweep within the desired range, which need seldom, if ever, be greater than, say, forty-five degrees.

In order to give the hoseman at the pipe complete control of the discharge of the water, the hose-pipe should, preferably, be provided with the long-ported "Allen" valve, and be used in connection with "Allen's relief-valve," for relieving the engines and hose, or cutting off the current.

I am aware that there is, broadly, no novelty in a branch pipe; but the branching of pipes as heretofore practiced, occurs most generally in the direction of delivery. Whenever two or more supply-pipes of a given capacity have been heretofore merged into one, the latter has usually, if not always, had a capacity equal to or greater than the combined capacity of those that enter it. On the contrary, when a large pipe is branched into several, it seldom if ever occurs that either of the several branches has a capacity equal to the main pipe. Should, perchance, a single conducting-pipe, of a capacity no greater than each of two or more of the pipes which enter it, be found to have existed heretofore, it would possess only an accidental resemblance to my own, as I am not aware that, previous to my invention, a series of conducting-pipes have ever been merged into one, whereby greater force and increased projecting power could be attained, as herein described. I desire, however, to distinctly disclaim the broad principle involved—that is to say, the branching of pipes—and confine myself to the compound hose-pipe described, which embodies the essential requisites and points in construction whereby it may be practically applied to fire-department apparatus, and to analogous uses.

Having thus described my invention, I claim as new and desire to be secured to me by Letters Patent—

The compound branch hose-pipe, composed of the main delivery-pipe A, and two or more entering-branches, B, provided with connections, substantially as described, whereby two or more streams of water, through separate lines of hose, may be combined in one, and delivered with increased volume and force, as and for the purposes specified.

MARTIN CRONIN.

Witnesses:

GEO. W. CUSHING, Jr.,  
GEO. F. STENZ.