

No. 621,495.

Patented Mar. 21, 1899.

A. ILER.

AUTOMATIC FIRE EXTINGUISHER.

(Application filed Apr. 29, 1898.)

(No Model.)

Fig. 1.

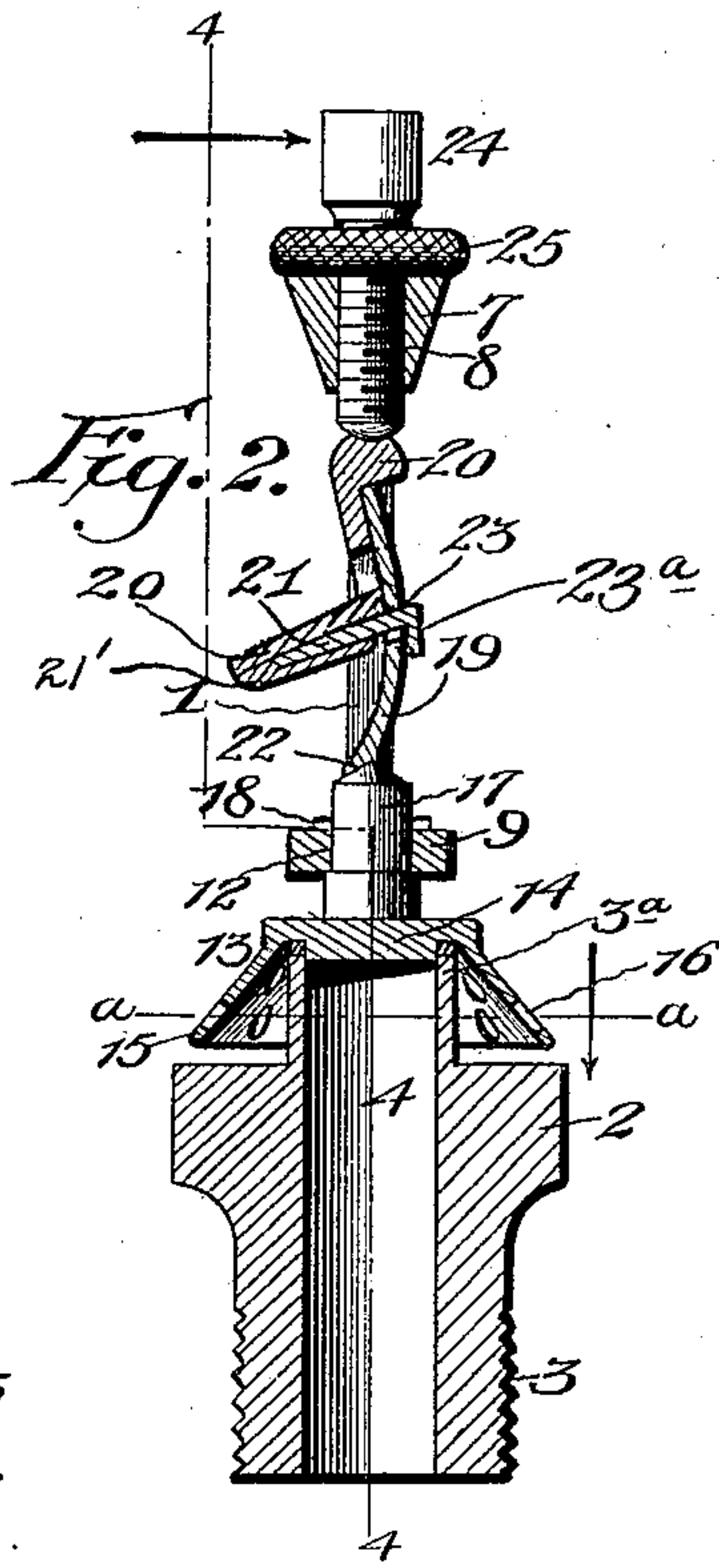
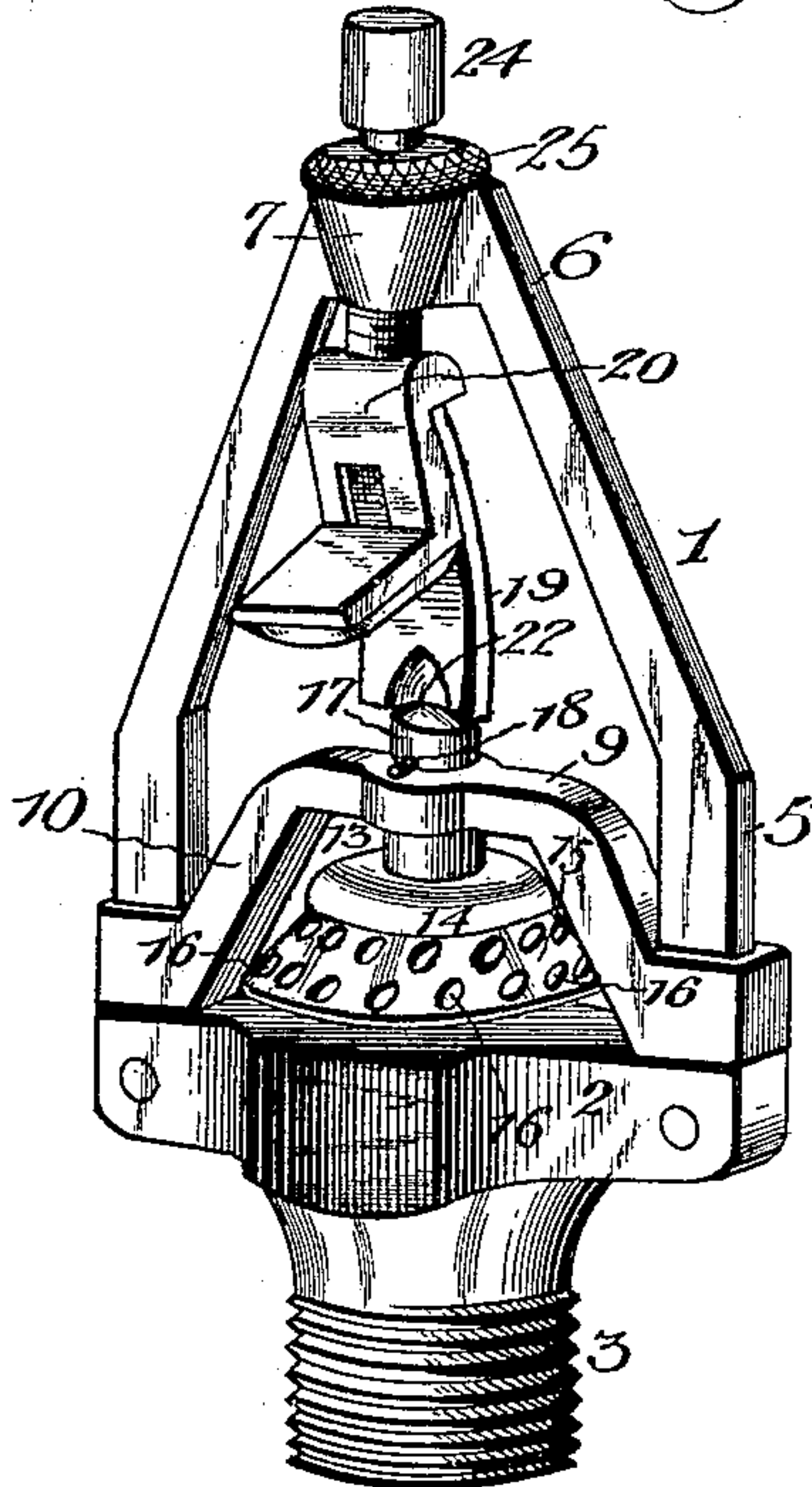


Fig. 3.

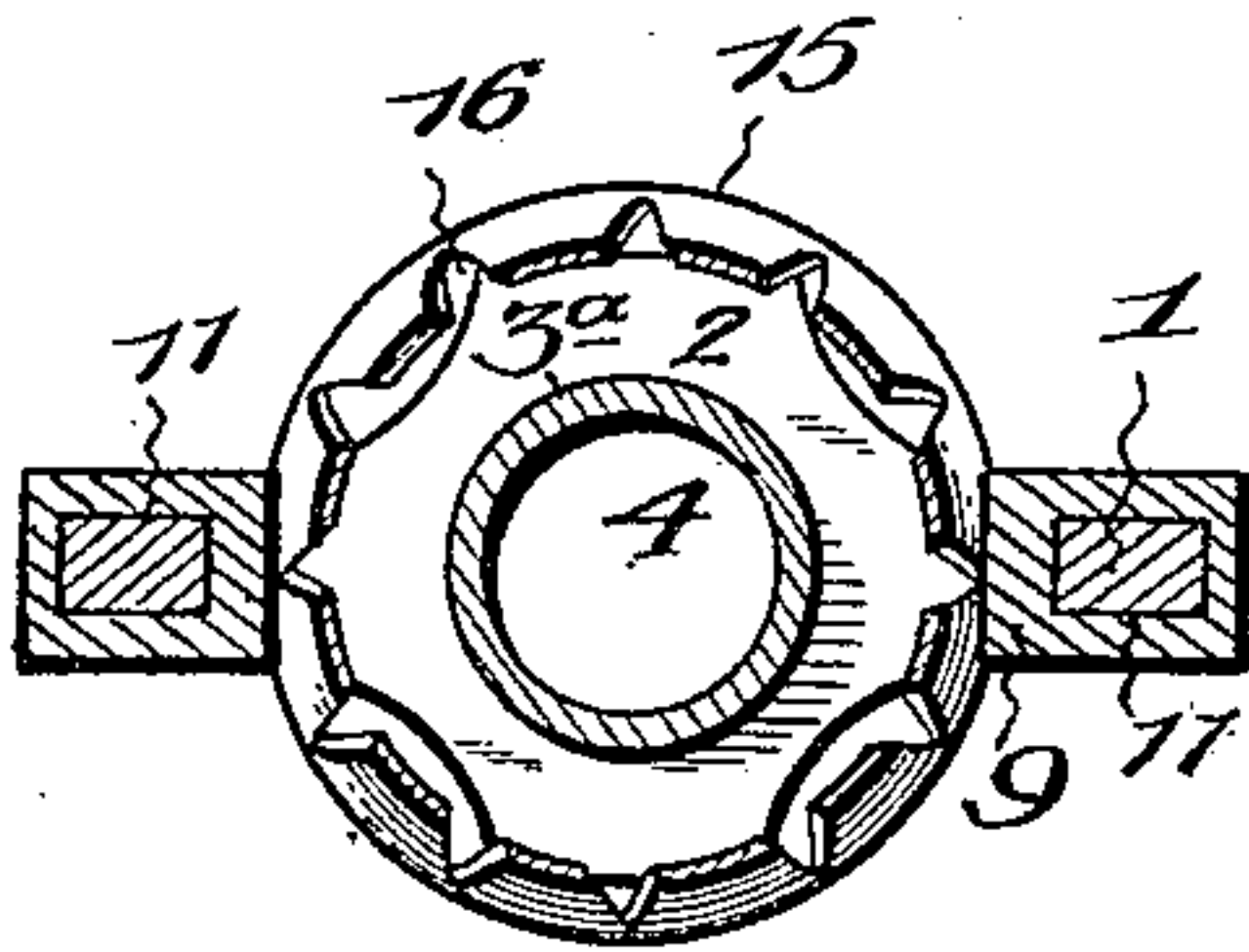
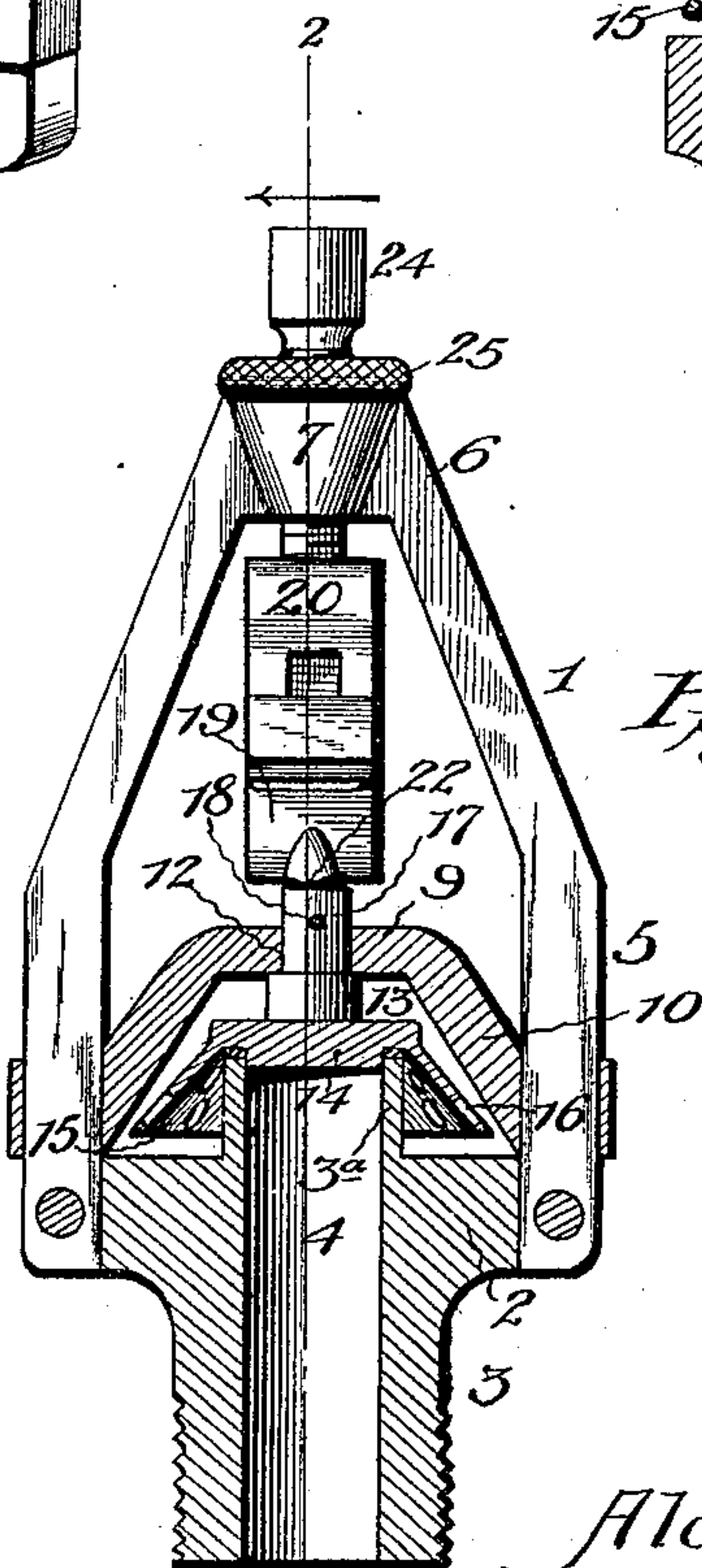


Fig. 4.



Witnesses

A. Roy Appleman

H. J. Bennett

By His 2 Attorneys,

Alonzo Iler, Inventor.

Cashnow & Co.

UNITED STATES PATENT OFFICE.

ALONZO ILER, OF GREENWOOD, SOUTH CAROLINA.

AUTOMATIC FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 621,495, dated March 21, 1899.

Application filed April 29, 1898. Serial No. 679,270. (No model.)

To all whom it may concern:

Be it known that I, ALONZO ILER, a citizen of the United States, residing at Greenwood, in the county of Greenwood and State of South Carolina, have invented a new and useful Automatic Fire-Extinguisher, of which the following is a specification.

This invention relates to improvements in automatic fire-extinguishers of that class which are designed to be attached to distributing-pipes for the purpose of normally closing the latter and to open when the fire in the vicinity of the extinguisher attains a temperature sufficient to dissolve a fusible joint:

The object that I have in view is to provide a simple extinguisher which will operate efficiently in service under all conditions of the pressure in the distributing-pipe to guide and direct the deflector to its seat on the frame or yoke in close proximity to the frame or nozzle and which allows for the passage of water through it, so that the water may be directed upon part of the fire adjacent the extinguisher and to enable the deflector to be adjusted for the purpose of inspecting the nozzle and to cleanse the same of sediment which may accumulate therein.

With these ends in view the invention consists in a fire-extinguisher comprising a frame or yoke having at one end a threaded nozzle adapted to be fastened to a distributing-pipe, a conical deflector adapted to fit over the outlet from said nozzle to form a valve therewith, a cross-bar which slidably embraces the yoke or frame to guide the deflector in its sliding movement on said yoke or frame when the fusible joint is melted, a three-part strut or stem having its members united by the fusible joint, a clamping-screw to engage with one member of the stem, and a jam-nut to prevent the clamping-screw from rotating in its seat in the yoke or frame, said conical deflector being perforated for the passage of water therethrough, all as will be hereinafter more fully described, and pointed out in the claims.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of my im-

proved automatic fire-extinguisher. Fig. 2 is a vertical sectional view taken centrally through the extinguisher on line 2 2 of Fig. 4. Fig. 3 is a transverse horizontal sectional view on the plane indicated by the dotted line *a a* of Fig. 2. Fig. 4 is a sectional elevation on the line 4 4 of Fig. 2.

Like numerals of reference denote like and corresponding parts in each of the several figures of the drawings.

In the practical embodiment of my improved fire-extinguisher I provide a yoke or frame 1, the ends of which are joined by a head or cross-plate 2, the latter being formed with a threaded nozzle 3, which is an integral part of said head or cross-plate. The nozzle is exteriorly threaded to enable it to be screwed into a tapped opening provided in the distributing-pipe, (not shown,) and this nozzle is extended through and above the head, so as to terminate in a nipple 3^a, against which is adapted to be seated the distributor and valve. The nipple and nozzle are hollow to provide a continuous passage 4, which communicates with the interior of the distributing-pipe and forms an outlet for the liquid from said pipe through the nozzle of the extinguisher. The yoke 1 is shown as separate from the head or plate 2 and is attached rigidly thereto; but it is evident that the yoke and head may be cast in a single piece of metal. The yoke has side bars, which are parallel for a part of their length, as at 5, and said bars from the point 5 are converged inwardly toward each other, so as to assume the inclined or sloping positions shown by the drawings, the upper adjacent extremities of the inclined parts 6 of the yoke being joined by the web 7. In the web 7, at the closed upper end of the converging side bars of the yoke, is provided a threaded opening 8, adapted to receive a clamping-screw, presently referred to.

On the parallel lengths of the yoke is slidably fitted a transverse bridge-piece 9, which carries the rotatable distributor. As shown in the drawings, this bridge-piece is provided with downwardly-inclined ends 10, in the free extremities of which are provided openings 11, that receive the parallel lengths of the yoke-bars, and this bridge-piece is adapted to slide upwardly on said yoke-bars until

the eye-formed ends of the bridge-piece reach the bends in said yoke-bars, which serve to limit the upward movement of the bridge and the rotatable distributor carried thereby.

5 The peculiar form of the transverse bridge enables the distributor to be arranged compactly between the inclined ends 10 thereof, and in the straight central portion of said bridge is provided a vertical central opening

10 12, which serves as the journal-bearing for the rotatable distributor, which is indicated at 13. This distributor or deflector is formed with a central solid portion 14, which is of sufficient area to cover the nipple 3^a of the

15 nozzle, thus forming a valve which when seated on the nipple is adapted to effectually close the nozzle against the egress of water from the distributor-pipe, and, if desired, this imperforate valve portion 14 of the dis-

20 tributer or deflector may carry a suitable gasket to more securely close the opening from the nozzle. The distributor 13 has a flared rim 15, formed as an integral part of the valve portion 14, and this rim depends

25 from said solid valve portion and flares outwardly therefrom. In the flared rim 15 is formed a plurality of holes or slots 16, which lie oblique to the radius of the distributor, and these oblique holes or slots provide edges

30 against which the water under pressure from the nozzle may impinge, so that the escaping current of water will serve to rotate the distributor on its connection with the bridge-

35 piece, and these slots or holes also provide for the passage of water through the deflector for the purpose of wetting the surface immediately above the sprinkler. This distributor is provided with a carrying-stem 17,

40 which is fitted loosely in the central opening 12 of the bridge-piece 9, thus rotatably attaching the distributor to the bridge-piece, and through the stem, above the bridge-piece, is passed a pin 18, which prevents the distributor from being accidentally separated

45 from the bridge when the parts are raised to their working position by the pressure of the water which issues from the nozzle and impinges against the distributor.

The conical or flared deflector is mounted

50 loosely on the bridge-piece in a position directly opposite to the nozzle, and the stream or jet of water under pressure from said nozzle impinges directly against the distributor to rotate the latter and insure the uniform

55 distribution of water from the sprinkler. Said distributor is mounted on the bridge-piece to be adjustable therewith, and when the bridge-piece and distributor are raised on the parallel lengths of the yoke the seat of

60 the nozzle and the other parts of the sprinkler are all exposed, so that ready access may be had to the working elements for inspecting, cleaning, or repairing the same.

In my improved sprinkler I employ a strut

65 or brace of novel construction to securely hold, under the influence of a clamping-screw, the distributor tightly upon the outlet end of

the nozzle, and this strut is made in three pieces, which are so arranged and joined as to quickly fall out of the path of the bridge- 70 piece and distributor when the fusible joint is melted by heat, said strut thus automatically falling out of the path of the bridge-piece, so as not to interfere with the free ac-

75 tion of the distributor. This strut consists of three pieces 19, 20, and 21. The piece or member 20 is angular in form and is provided at its upper edge with a lip which is adapted to fit over the piece 19 and which member serves as

80 a bearing for the screw 24. The piece or member 21 is attached to the member 19—as, for example, by making a hole 23 in the member 19 to receive a hook or lip 23^a on the member 21—and said member 21 is united by a fusible al-

85 loy 21' to the offstanding lower end of the member 20, whereby the members 20 21 are fitted to the member 19, and said members 20 21 are united together by a fusible joint. The lower end of the vertical member 19 has

90 a socket or bearing 22 for the upper pointed end of the stem 17, and the strut is confined between said stem and the screw 24, the latter being screwed into the yoke and having a check-nut 25. When the alloy is fused, the

95 members 20 21 separate and the member 20 turns on the fulcrum which is formed by the lip resting on the upper edge of the vertical member 19, thus allowing the parts of the strut to fall away one from the other and permit the valve to open. 100

In the threaded opening 8 at the upper extremity of the yoke is mounted a clamping-screw 24, which is adapted to be turned until it rests upon the strut to force the valve of the distributor tightly upon the nozzle of the 105 sprinkler, and this clamping-screw is held from accidental release by the employment of a check-nut 25, which is fitted on the screw and is adapted to be turned thereon until it engages with the upper end of the yoke. 110

In operation the nozzle is screwed into the distributing-pipe, the bridge-piece and distributor are adjusted over the nozzle, the strut is placed between the carrying-stem 17 and the clamping-screw, and said screw is then 115 turned until its lower end bears upon the strut, which serves to clamp the valve portion of the distributor tightly against the nozzle, the check-nut 25 being adjusted to hold the clamping-screw against rotation. In the 120 event of a fire the heat therefrom dissolves the metallic alloy, and the three parts of the strut quickly separate, thus leaving an open space within the yoke below the clamping-screw. The water under pressure in the pipe 125 forces the distributor and bridge-piece upwardly until the eye-formed ends of said bridge-piece are arrested by the angular parts of the yoke, and as the water impinges against the oblique slots or holes in the flared rim of the distributor the latter is rotated, so as to force or distribute the water on radial lines within a comparatively large area adjacent to the extinguisher. The pressure of the water 130

holds the bridge-piece and distributor in their raised positions, and the distributor is free to rotate in the bridge-piece, because its stem 17 is fitted loosely in the central opening 12 of the bridge-piece.

I am aware that changes in the form and proportion of parts and in the details of construction may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications as clearly fall within the scope of the invention.

Having thus described the invention, what I claim is—

1. An automatic fire-extinguisher comprising a yoke having the nozzle at one end, a transverse bridge-piece slidably fitted on the yoke, a distributor journaled on the bridge-piece for free rotation thereon and having an imperforate valve portion adapted to the mouth of the nozzle, a sectional strut having its members united by a fusible joint, and a clamping-screw to press the strut and the valve portion of the distributor tightly upon the nozzle, substantially as described.

2. An automatic fire-extinguisher comprising a nozzle, a yoke the sides of which are parallel for part of their length and are converged beyond said parallel lengths thereof, a bridge-piece slidably fitted to the parallel lengths of the yoke and adapted to be limited by the converging lengths thereof in the movement of the bridge-piece away from the nozzle, a distributor rotatably mounted on said bridge-piece, a sectional strut having its members united by the fusible joint, and a clamping-screw, substantially as described.

3. An automatic fire-extinguisher comprising a nozzle having the yoke, a bridge-piece with inclined ends slidably fitted to the yoke,

a distributor arranged within the irregularly-formed bridge-piece and having a central imperforate valve and a flared rim provided with oblique slots or holes, a carrying-stem attached to the distributor and fitted loosely in the bridge-piece, a sectional strut, and a clamping-screw, substantially as described.

4. An automatic fire-extinguisher comprising a nozzle, a yoke rigid therewith, a slidable bridge-piece carrying a rotatable distributor, a three-part strut one member of which is arranged at an angle to the lower members and all of said members united by a fusible joint, and a clamping-screw to hold the strut and distributor in fixed relation to the nozzle, substantially as described.

5. An automatic fire-extinguisher comprising a head having the nozzle, a yoke having certain portions of its side bars converged for a part of their lengths and the remaining portions parallel and attached to the head, a bridge with its inclined end slidably fitted to the parallel lengths of the yoke, a distributor arranged compactly within the bridge-piece and having an imperforate valve portion and a flared slotted or perforated rim, a stem attached to the distributor and journaled in the bridge to travel therewith, a sectional strut one member of which is provided with a seat to receive the stem of the distributor, and a clamping-screw mounted in the upper end of the yoke to bear upon the upper member of the strut and provided with a check-nut, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALONZO ILER.

Witnesses:

A. F. HAGAN,
J. W. SPROLES.