

(No Model.)

3 Sheets—Sheet 1.

L. T. MANN.  
TORPEDO SIGNAL PLACER.

No. 389,233.

Patented Sept. 11, 1888.

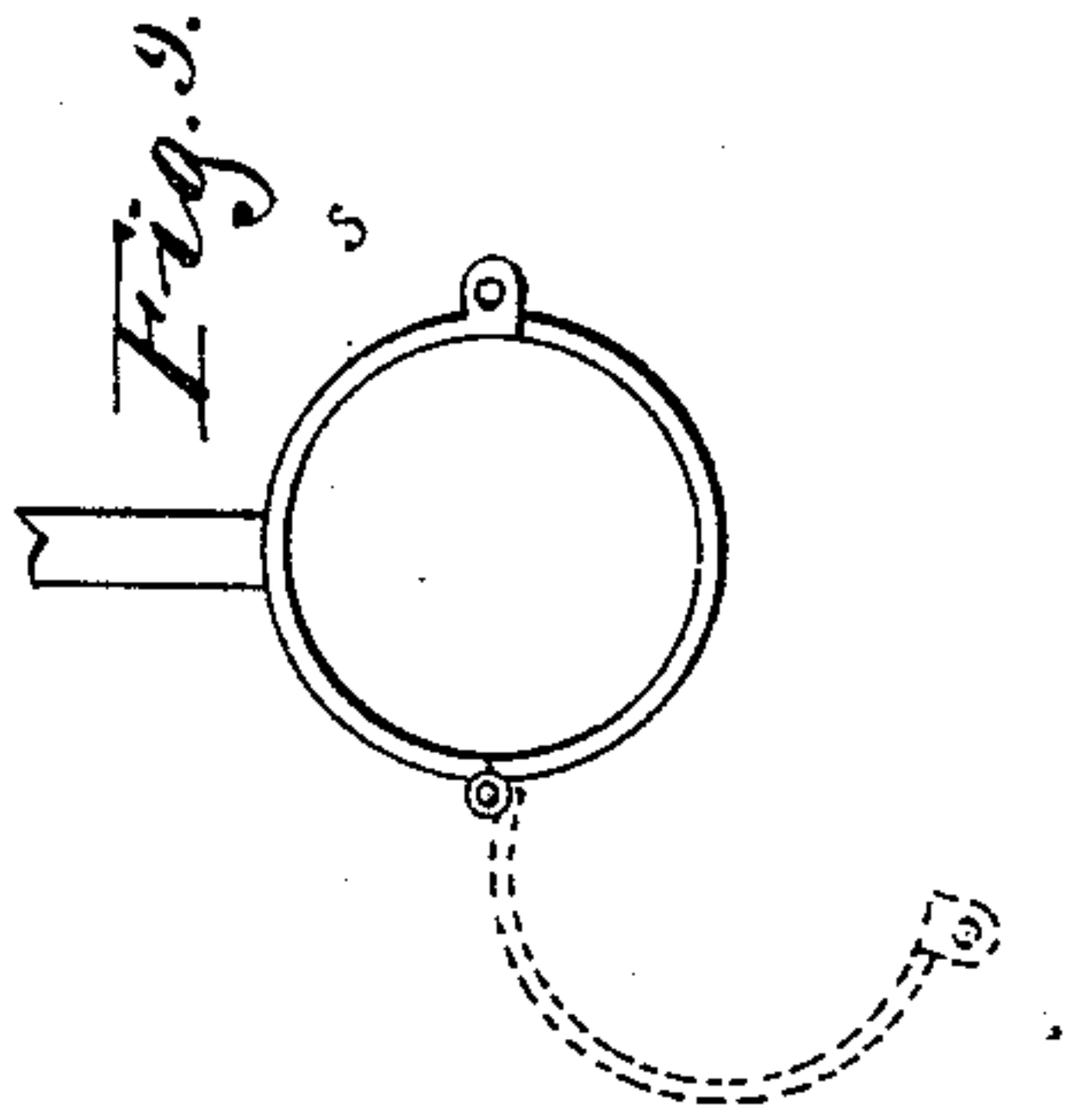
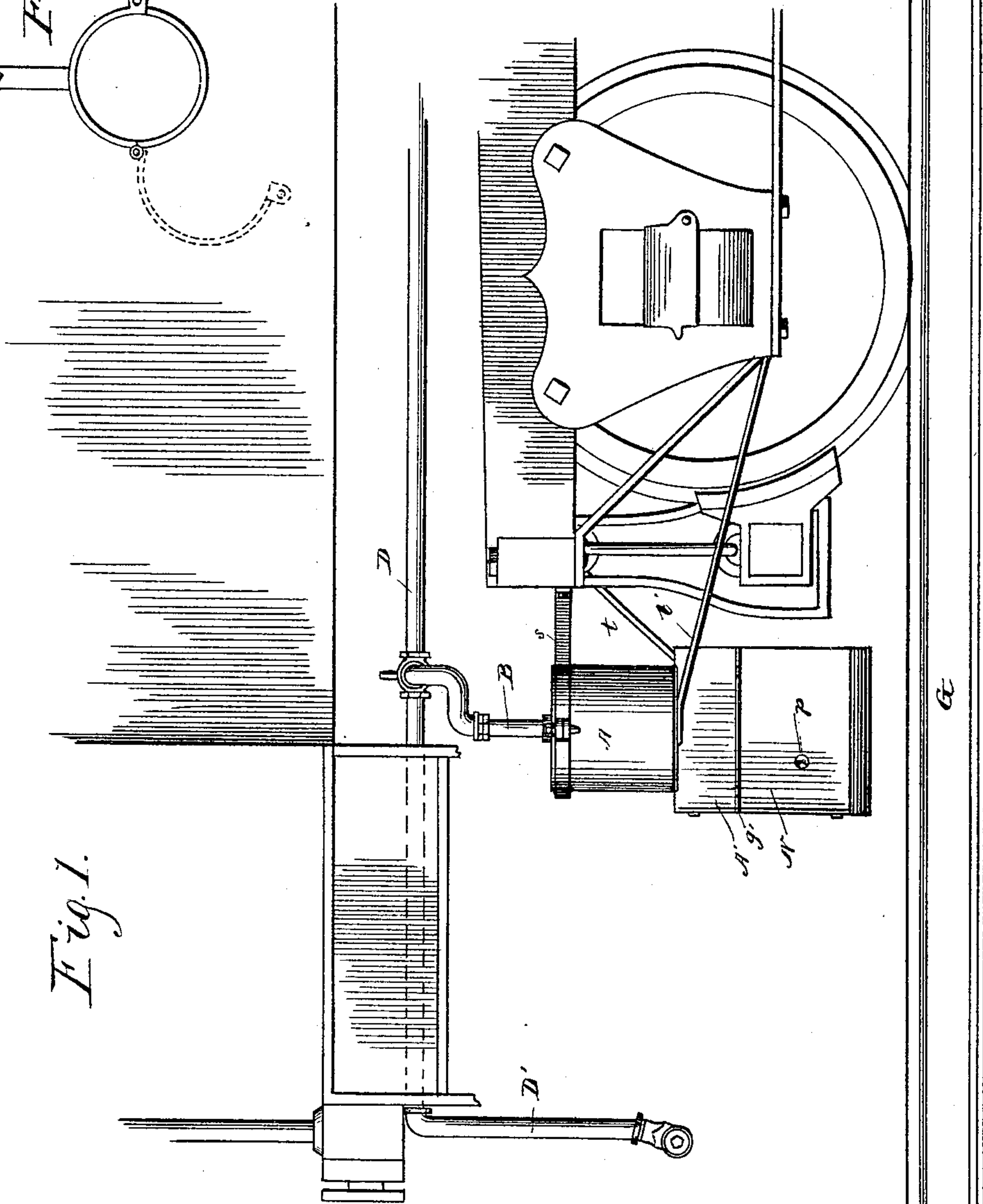


Fig. 1.



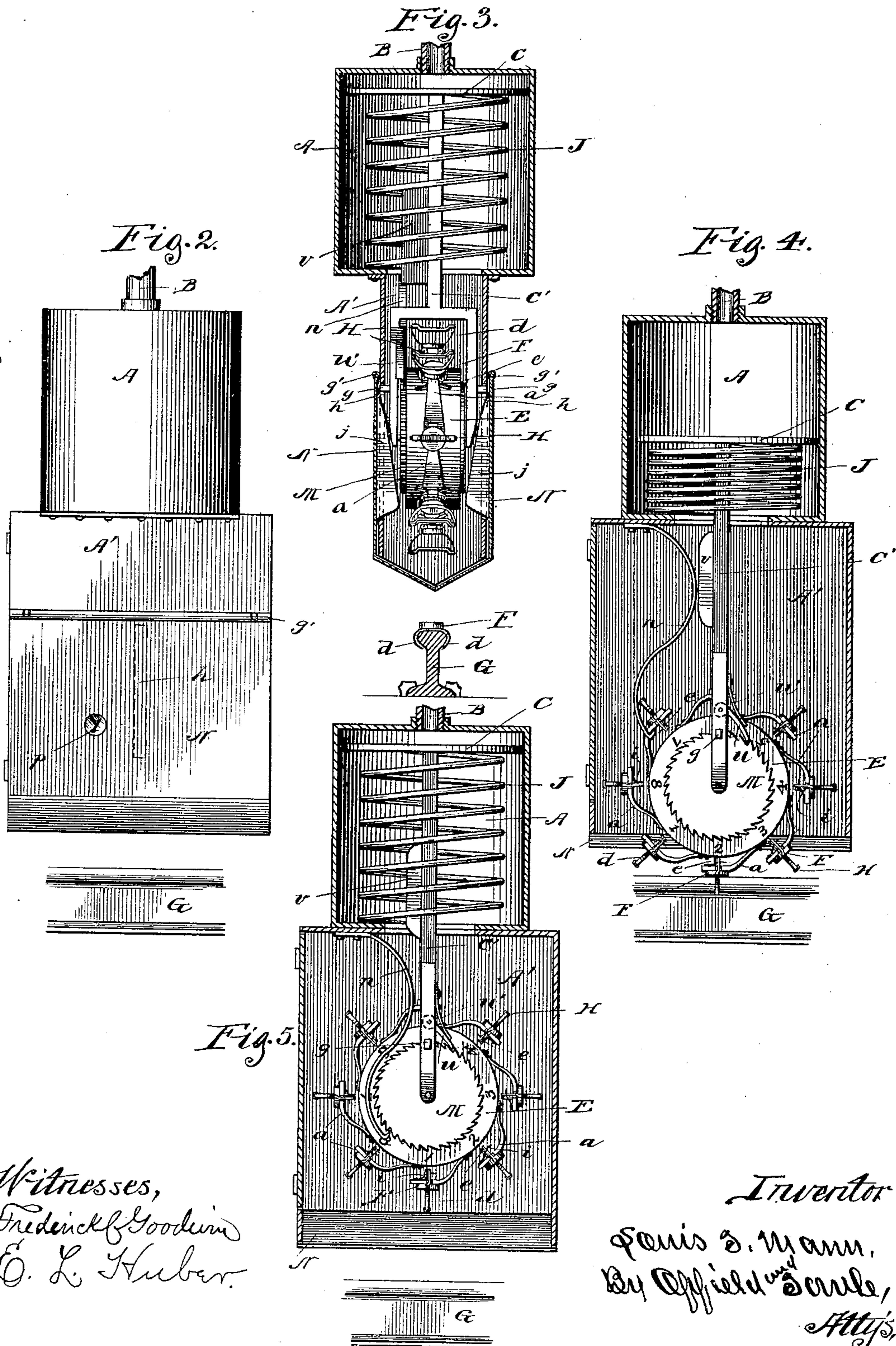
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By Alfred W. Gault,  
Atty's.

3 Sheets—Sheet 2.

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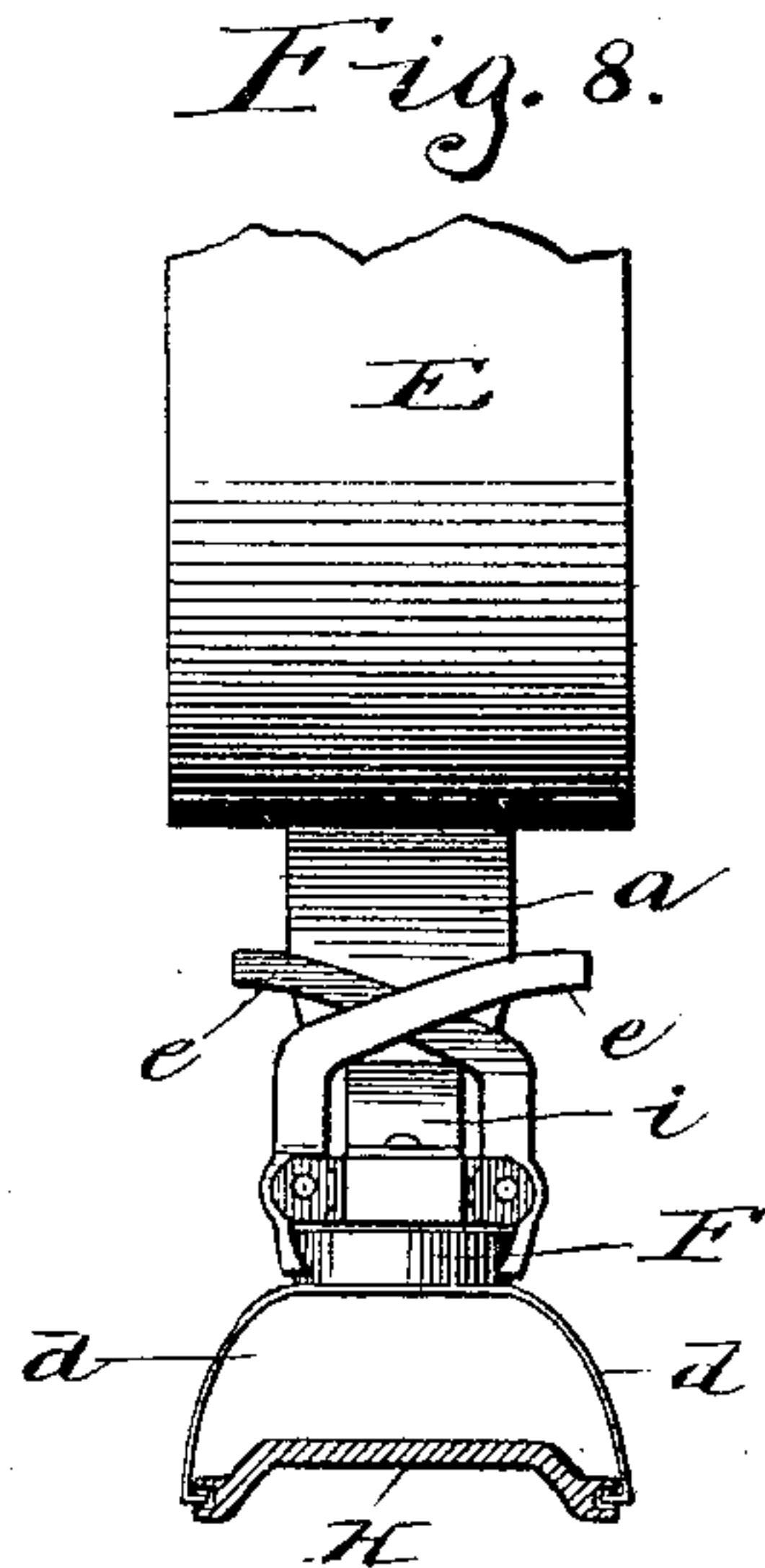
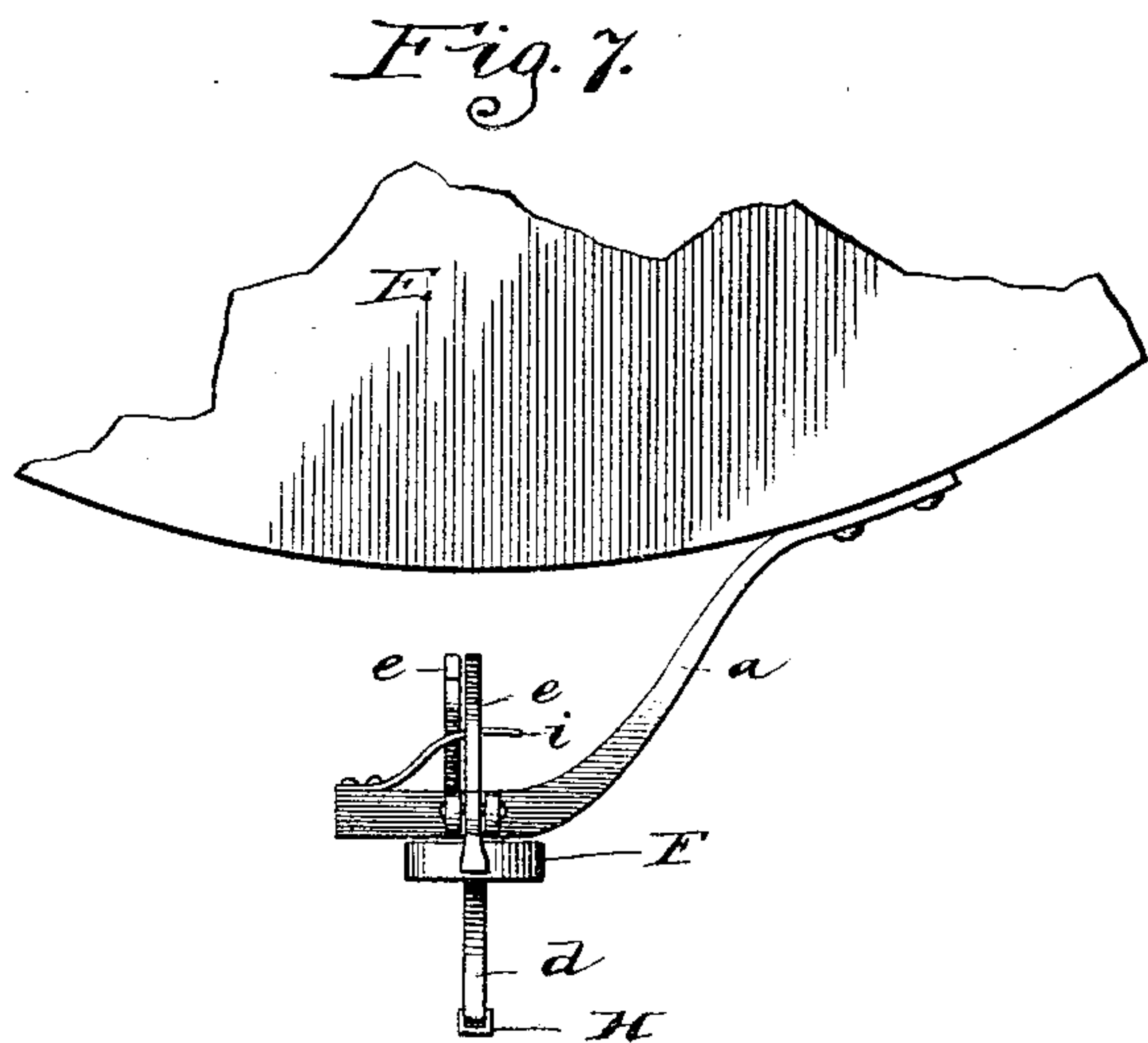
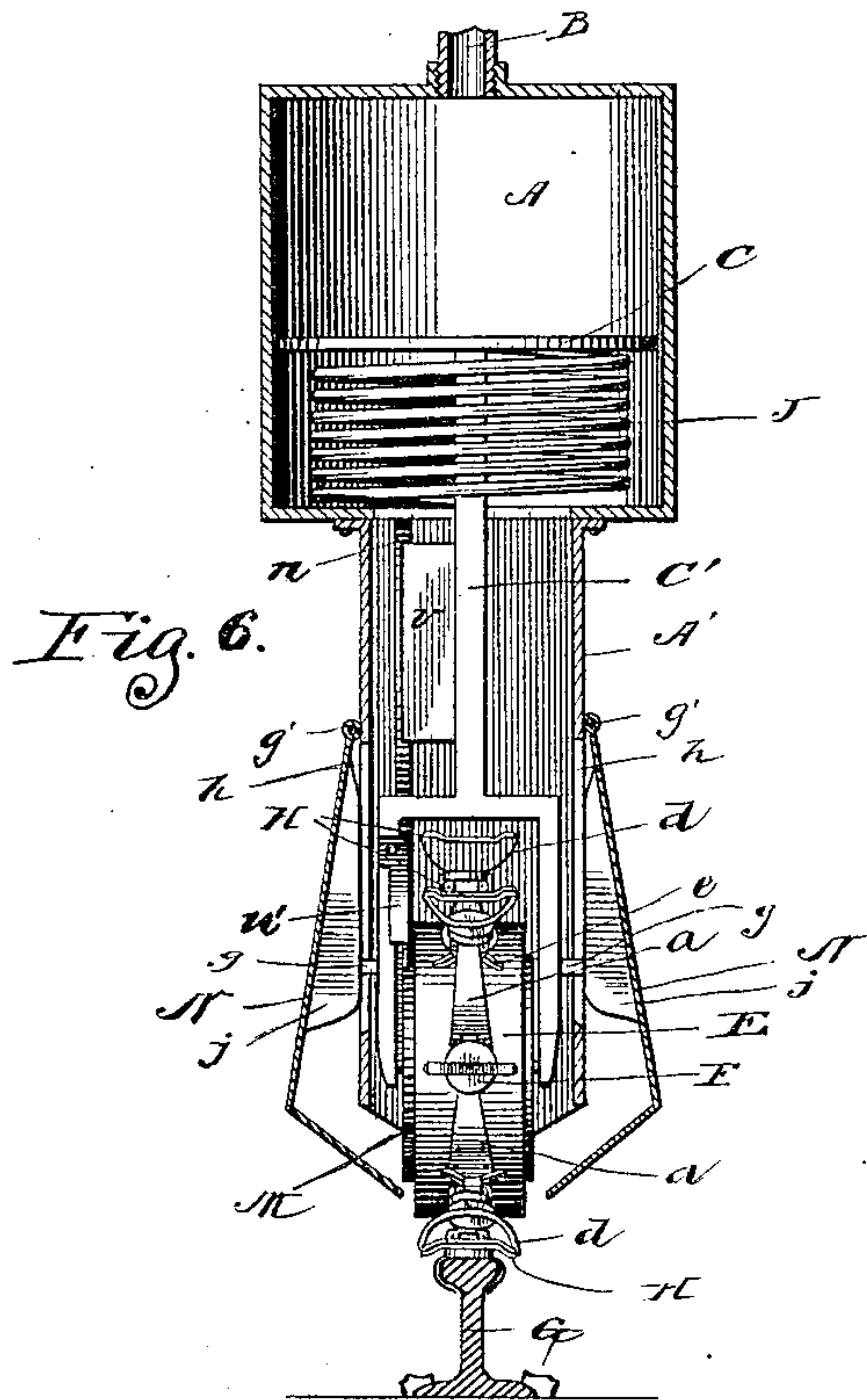
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3 Sheets—Sheet 3.

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Inventor;  
Louis S. Mann  
By, Oppfield and Scoble, Attys.



# UNITED STATES PATENT OFFICE.

LOUIS T. MANN, OF CHICAGO, ILLINOIS.

## TORPEDO-SIGNAL PLACER.

SPECIFICATION forming part of Letters Patent No. 389,233, dated September 11, 1888.

Application filed September 17, 1887. Serial No. 249,983. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS T. MANN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Placing Railroad Danger-Signals.

The object of my invention is to facilitate the placing of torpedoes as danger-signals upon the rail or rails of a railway-track. Heretofore this operation has usually been performed by the hand directly or by hand appliances, in which the placing of signals was necessarily done by the train-men while the train was at rest, or at most when its speed was very slow. A necessity often occurs for placing signals when the train is at a rapid rate of speed as a cautionary measure to warn trains that are closely following.

My invention is designed to answer the purpose under any and all ordinary circumstances.

Figure 1 is a portion of the end of a car in side elevation with my invention attached. Fig. 2 is a side elevation of the signal-placing apparatus. Fig. 3 is a vertical section at right angles to Fig. 2. Fig. 4 is a vertical section of the apparatus in which the extensible torpedo-holding mechanism is shown when thrust down. Fig. 5 is the same as Fig. 4, with the extensible mechanism raised or in a normal position. Fig. 6 is the same as Fig. 3, with the depositing mechanism down. Figs. 7 and 8 are details enlarged. Fig. 9 is a detail of a collar.

In the present example I have shown the depositing mechanism in connection with pipes in which compressed air is used as the actuating power. For this purpose I have an air-reservoir provided at the engine which is under the control of the engineer, or for freight-trains in which it would be somewhat inconvenient to connect the several cars of the train by pipes, owing to the frequent necessity for uncoupling cars. I preferably provide the air-reservoir connected with the caboose and adapted to be operated in the transmission of air to the signal mechanism by means of valves under the control of the train-men. From either of these points is provided a suitable pipe leading to the signal mechanism. A hollow cylinder, A, and a lower casing, A', con-

stitute the covering and basis for applying the operating mechanism. These parts are preferably constructed of sheet metal, the upper portion, A, being constructed suitably for the accommodation of a piston within it. Casing A' is riveted to the bottom of cylinder A, as apparent from the drawings. This signal structure is supported by braces *s t* and *t'*, secured to the car structure in suitable positions. Brace *s*, as shown in detail in Fig. 9, is provided with a hinged collar adapted to clasp the upper end of cylinder A. The two latter braces are adapted for supports, upon which, respectively, the ends of the cylinder extending beyond the sides of the lower casing rest. It is thus apparent that the signaling mechanism may be conveniently placed in position or removed at pleasure.

When the air-reservoir is applied to the caboose as the most feasible method in connection with freight-trains, one set of braces at each end of the car only is necessary. When, however, the application is made to passenger-trains, every car should be provided at each end with braces. A single apparatus will, however, answer in either event, as it may be readily transferred from one car to another, or from one end of the car to another end. The cylinder A is provided with a piston, C, and from the end of the cylinder suitable pipe-couplings, B, connect with the main pipe D as a means for the induction of compressed air to said cylinder. The extension D' of pipe D is shown, to which a coupling is attached as a provision for the continuation of said pipes from the engine to the rear of the train, when the signal device is used in connection with passenger-trains, and the signal operation is dependent for its execution upon the engineer. Secured beneath and extending down from piston C is a rod, C', that reaches into the casing A'. The lower end of rod C' is bifurcated and holds pivotally within said bifurcation a wheel, E, which latter is the basis of the automatic mechanism. About the periphery of wheel E are secured springs *a*—eight in number in the present example. These springs are respectively secured at one of their ends to the periphery of wheel E by bolts or screws, the opposite end being curved away from the wheel, but conforming in general direction to its circumfer-



ence. Thus the outer ends of the springs are free to play to or from the wheel. At the ends of springs *a* are provided clutches *e*, each spring having the two parts constituting the clutch hinged at its edges, which parts cross each other above the spring. Beneath the spring clutches *e* are so formed as to grasp the head of a torpedo, which latter is designated F. Clutches *e* are normally held in position to grasp the torpedo by means of a small spring, *i*, the force of which is upward, thus, as apparent, tending to close the grasping parts of the clutches. Torpedoes of ordinary construction are provided with springs *d*, that normally occupy positions close to the bottom of the torpedo, their purpose being to clasp the rail, whereby the torpedo is secured thereto. It of course becomes necessary to separate said springs to accomplish this object. For this purpose I provide a spreader, H, that normally holds the springs *d* apart sufficiently to pass over the rail. The spreader H, I construct of terra-cotta or glass, friable or easily broken. As a convenient means of applying the spreader H to torpedoes of ordinary construction, the springs are adapted to the spreader by bending their ends inwardly to engage with recesses in the ends of said spreader.

Heretofore springs *d* have been held apart where appliances have been used for depositing a torpedo by mechanism or parts permanently attached to the said appliances, in which very great liability occurred of having the operation frustrated by such parts coming in contact with fish-plates, bolts, or other obstructions. This difficulty is entirely obviated by the use of the spreader H. The operation of piston C is apparent, the downward stroke being the result of admission to the cylinder of compressed air, and the upper stroke or retraction being effected by the spiral spring J. Wheel E may be properly designated a "magazine," in which as a starting-point for operation on the road each of the springs *a* is supplied with a torpedo. In order that the latter may be successively brought in position for use, it becomes necessary to rotate wheel E, which is automatically done. For the latter purpose one side of wheel E is provided with a ratchet, M, with the teeth of which the hooked end of a flexible or spring rod or bar, *n*, engages. The latter is secured at its upper end by rivets or bolts to the upper plate of casing A'. A pawl, *u*, held down by a spring, *u'*, also engages with the ratchet. The hook of bar or rod *n*, when in normal position, engages with the teeth of the ratchet below the center of the latter when the wheel E is also in its retracted or normal position. A downward stroke, therefore, of the wheel, as actuated by the piston, causes a partial revolution of said wheel by reason of the contact of the ratchet and rod *n*. The latter, as apparent, is fixed as to vertical movement. It is apparent that a reverse arrangement of the ratchet appliances may be made, so that the

retracting stroke shall effect a partial revolution of the wheel. The circumference of the ratchet and the position at which bar *n* normally engages with it are so proportioned that the partial revolution of wheel *e* at each stroke shall equal the distance between torpedoes, so that one of the latter at each deposit may be brought into position beneath the wheel for the next deposit. As shown in Fig. 4, cam *v* on piston-rod C' is brought into contact with bar *n* when the wheel E and its parts are down, thereby forcing said bar outwardly and disengaging its end from the ratchet-teeth at the proper time, and also thus permitting the ascent of the wheel without disturbing its position as to rotation. The pawl *u* by bearing against the ratchet prevents the wheel from rotating otherwise than in the desired direction, and also by the force of its contact prevents disturbance of the wheel in rotary movement except when legitimately rotated by bar *n*.

In the operation of placing the torpedoes upon the track a downward stroke of the piston is proportioned to the height at which wheel E is located above the rail, and is such as to place the lower surface of the torpedo in contact therewith. By a further descent of the wheel with springs *a* under flexion a forcible contact of said wheel with the crossed ends of the clutches serves to depress the latter and thereby open and disengage the lower ends from the torpedo. Upon striking the rail spreader H is shattered at a time when the ends of the springs are sufficiently beneath the top of the rail G to insure their passage thereon. To close the bottom of the casing A' during the time when the depositing mechanism is not in use, to prevent the ingress of snow or dirt, and to arrange for automatic opening and closing thereof, wings or supplementary sides N are provided. These wings are respectively hinged at their upper ends at *g'*, and their lower ends being brought to an obtuse angle, one in the direction of the other, meet centrally of the bottom of the casing, whereby the latter is closed. Vertical slots *h* are formed in the sides proper of the casing A', as indicated by dotted lines, Fig. 2. On the sides of the piston-rod C', opposite the upper portion of wheel E, are secured horizontally-extending guide-bars *g*, the outer ends of which travel in slots *h*, thus serving to keep wheel E in line during its ascending or descending movement. In addition to this, the slots and guide *g* perform another function. Upon the inner sides of wings N are respectively placed cams or inclines *j*, that are adapted, when wheel E is up, to occupy positions in the slots *h*, at which time said wings lie close against the sides of casing A'. When the wheel, with its parts, is thrust down, the ends of bars *g* move against cams *j* and force the wings outwardly, as shown in Fig. 6, and thereby create a passage-way, through which the wheel projects.

In order to determine conveniently when



the supply of torpedoes upon wheel E is exhausted, or rather to ascertain when a fresh supply is needed, I place numbers on the wheels, as shown in several figures of the drawings, in position corresponding to the positions of the torpedoes, preferably in numerical order, and also provide an observation-aperture, *p*, in the covering or casing. As a protection to this aperture against objectionable ingress, I insert a transparent disk.

The operation of the several parts is apparent from the foregoing description, in which, by manipulation of a valve connected with a compressed-air tank (not shown) by the engineer or other train-man, air may be suddenly admitted to the cylinder A, forcing down the piston and depositing the torpedo. That these admissions and exhausts of air may be made to succeed each other rapidly, a two-way cock, of any desirable construction, is provided and properly connected with the air-reservoir, whereby the desired rapidity of succession is obtained. The air-tank may in the case of passenger-coaches be connected with the air-brake system, if thought desirable, though as comparatively little force is required the air may be pumped into the cylinder by a hand-pump.

In the use of the signal apparatus in connection with freight-trains, when the air-tank should be connected with the caboose, the hand-pump would be the desired means of supplying air.

I do not design to limit my claims, belonging to some features of my invention, to their necessary connection with others—as, for instance, the wheel E might be attached to a hand appliance. So, also, the breakable spreader H is equally applicable to any appliances for placing torpedoes, other than when the torpedo is directly applied by hand.

Having thus described my invention, what I claim is—

1. In an apparatus for placing railroad danger-signals, a wheel or disk pivotally supported, about the periphery of which provision is made for retaining torpedoes, said wheel being adapted for quick thrusting to deposit a torpedo, and being also quickly retractible, with mechanism for automatically effecting partial rotation of said wheel by a depositing movement.

2. In an apparatus for placing railroad danger-signals, a wheel or disk supported pivotally, about the periphery of which mechanism is applied for retaining the torpedoes, in combination with a cylinder having therein a piston connected with a wheel and adapted to be operated on by compressed air, whereby a thrusting movement of said wheel may be produced and a deposit of the torpedo upon the rail effected.

3. In an apparatus for placing railroad dan-

ger-signals, the breakable spreader H, adapted to be placed between the ends of the springs of a torpedo and maintain a proper separation of the latter during the operation of fixing or placing the said torpedo, substantially as shown and described.

4. In an apparatus for placing railroad danger-signals, a wheel, E, pivotally supported, upon the periphery whereof are attached springs *a*, to which latter are pivotally affixed clutches *e*, that are suited for holding torpedoes, and adapted to be separated or depressed to release the torpedo, substantially as described.

5. In an apparatus for placing railroad danger-signals, a wheel, E, pivotally supported, having secured upon its periphery springs *a*, adapted for temporary retention of torpedoes, in combination with the supporting and vertically-moving rod C, and the pawl action rod *u*, whereby, by a downward movement, wheel E is partially rotated.

6. In an apparatus for placing railroad danger-signals, a wheel, E, having connected therewith a mechanism suited for holding torpedoes, in combination with casing A', wings N, cams *j*, and guide-bars *g*, whereby said wheel is normally incased, and the wings N separated by a downward movement of the wheel.

7. The combination, in an apparatus for placing railroad danger-signals, of a cylinder, A, piston C, spring J, piston-rod C', wheel E, pivotally suspended on said rod and adapted to retain torpedoes on its periphery, and pipe D, the latter being connected with an air-reservoir and adapted for admitting air to the cylinder, substantially as set forth.

8. In combination with suitable pipe-connections for the admission of air, the cylinder A, piston C, spring J, piston-rod C', wheel E, ratchet M, spring-pawl *u*, pawl *u'*, and springs *a*, the latter being provided with clutches *e*, and adapted to temporarily retain torpedoes, substantially as and for the purpose specified.

9. The wheel E, supported by rod C', and adapted to be operated vertically, in combination with guide-bars *g* and guide-slots *h*, substantially as and for the purpose specified.

10. In an apparatus for placing railroad danger-signals, the wheel E, pivotally and adjustably mounted and adapted to retain torpedoes upon its periphery, in combination with hinged wings N, which latter are provided with cams *j*, actuated by a guide rod, *g*, whereby said wings serve to close the bottom of the wheel-casing when the wheel is up and automatically open when said wheel is thrust down, as set forth.

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