(No Model.) 2 Sheets—Sheet 1.

M. H. KERN & H. TIDEMAN.

HOSE REEL.

No. 561,229. Patented June 2, 1896.

FIG. 1.

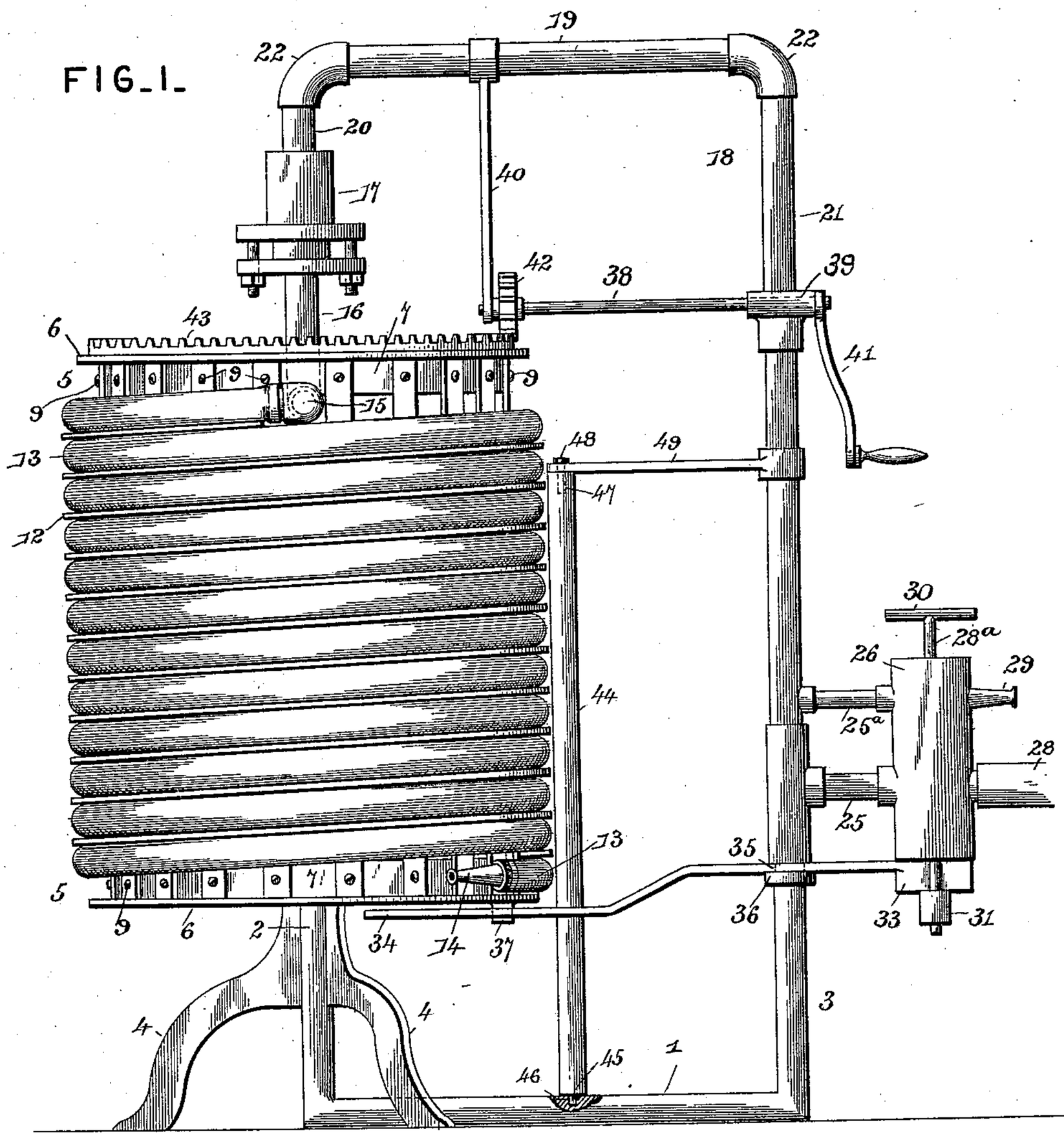
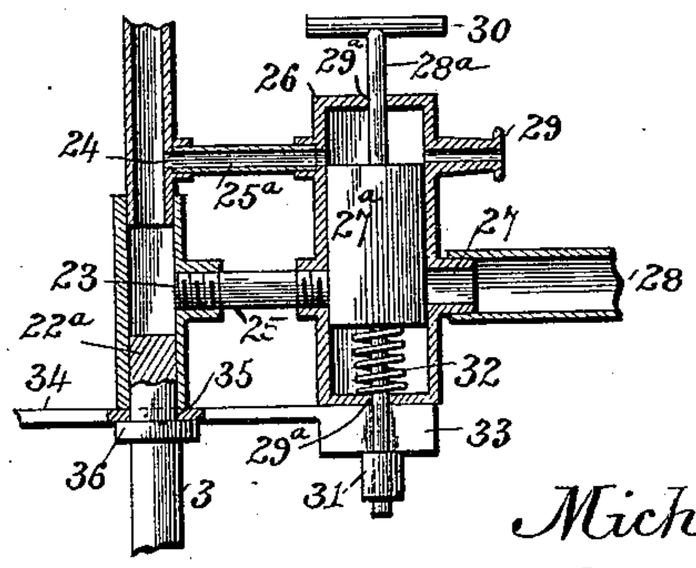


FIG. 4.



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(No Model.) 2 Sheets—Sheet 2.

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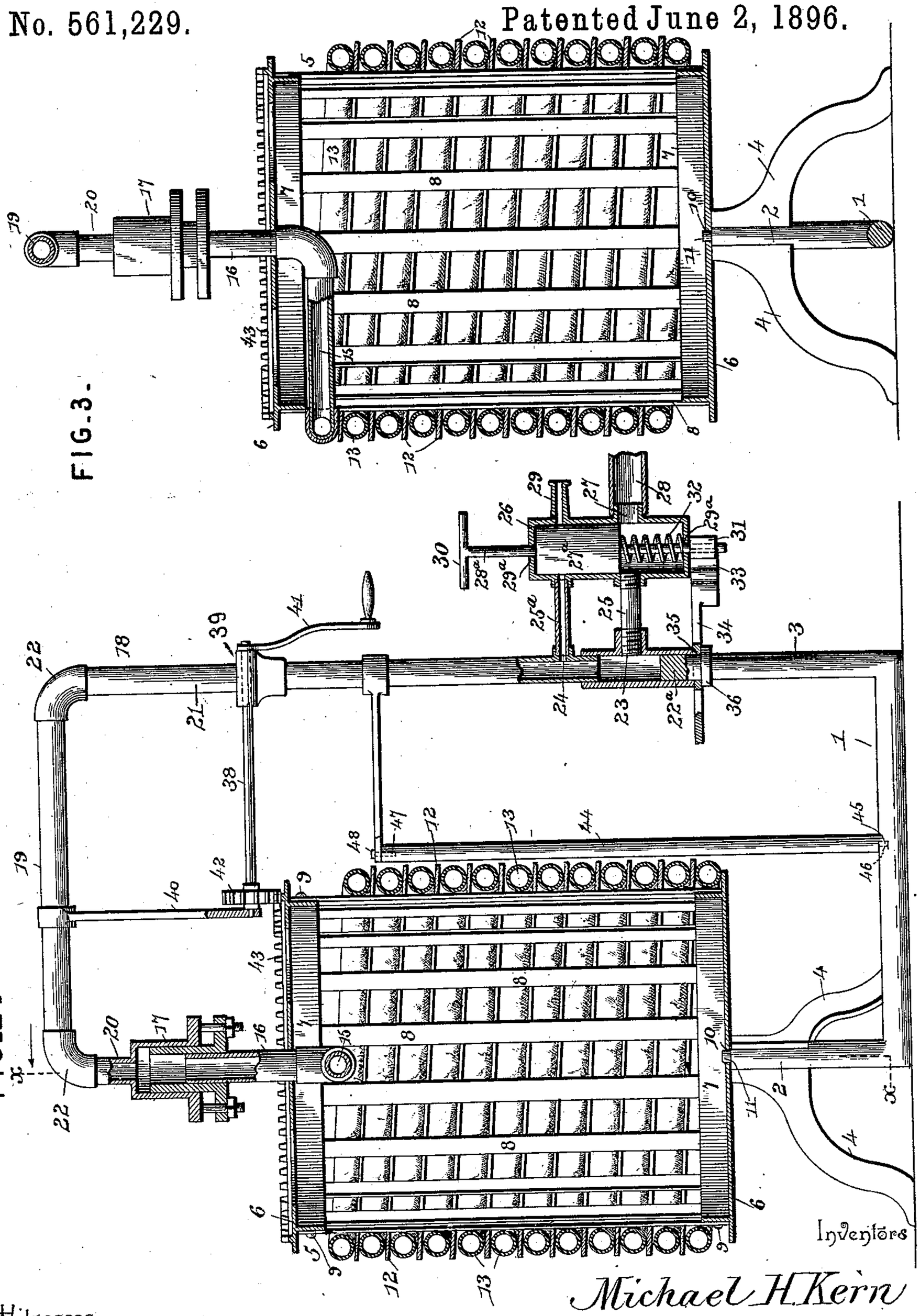

FIG. 3.

FIG. 2.

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UNITED STATES PATENT OFFICE.

MICHAEL H. KERN AND HENRY TIDEMAN, OF MENOMINEE, MICHIGAN, ASSIGNORS TO THE MENOMINEE IRON WORKS COMPANY, OF SAME PLACE.

HOSE-REEL.

SPECIFICATION forming part of Letters Patent No. 561,229, dated June 2, 1896.

Application filed February 28, 1895. Serial No. 540,071. (No model.)

To all whom it may concern:

Be it known that we, MICHAEL H. KERN and HENRY TIDEMAN, citizens of the United States, residing at Menominee, in the county of Menominee and State of Michigan, have invented a new and useful Hose-Reel, of which the following is a specification.

This invention relates to hose-reels; and it has for its object to provide a new and useful construction of automatic hose-reel that will be automatic in its operation to provide for operating the valve that controls the supply and the drainage of the water.

To this end the main and primary object of the present invention is to provide a new and useful automatic hose-reel having simple and efficient means for starting and cutting off the flow of water, for automatically draining the line of piping from water after the supply thereof has been cut off, and also to provide for reeling the hose in such a manner that the same will automatically drain itself of standing water therein, and the convolutions of the hose will be exposed to a free circulation of air, so that the same will quickly and thoroughly dry after being used.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of an automatic hose-reel constructed in accordance with this invention. Fig. 2 is a central vertical sectional view thereof. Fig. 3 is a vertical sectional view on the line *x x* of Fig. 2. Fig. 4 is a detail sectional view of the combined water-supply and drain valve, showing a different position of the valve-plug from that shown in Fig. 2.

Referring to the accompanying drawings, 1 designates a U-shaped supporting-base having the parallel upright arms 2 and 3, respectively, and the upright arm 2 of the base 1 is provided with a series of supporting-legs 4, which, together with the upright arm 2, provide a bearing-support for the upright revolving reel-cylinder 5.

The upright revolving reel-cylinder 5 consists of the upper and lower circular heads 6, having on their inner faces circular flanges 7, and a series of parallel upright bars or slats 8, connecting the upper and lower heads 6. The upright bars or slats 8 are arranged at distances apart to admit of a free circulation of air throughout the interior of the reel-cylinder and around the convolutions of the hose that is exteriorly reeled on the said cylinder, and the ends of the bars or slats 8 are suitably secured, as at 9, by means of screws or other fastening means on the outside of the flanges 7 of the said cylinder-heads, said bars or slats, together with the heads, completing a construction of reel-cylinder of the same diameter throughout, while at the same time being open to provide for the circulation of air contemplated for by this invention.

The lower circular head 6 of the upright reel-cylinder 5 is provided with a central bearing-opening 10, that receives the bearing-stud 11, projected integrally from the upper end of the upright arm 2 of the base 1, and this connection of the reel-cylinder with the supporting-base provides for the pivotal or bearing support of the lower end of the reel-cylinder. The said reel-cylinder 5 is further provided with an exterior spiral supporting-flange 12, that is secured exteriorly on the slatted periphery of the upright cylinder to provide for supporting and separating each separate convolution of the hose 13, that is adapted to be reeled and unreeled on the cylinder. By reason of separating and supporting each convolution of the hose by means of the continuous spiral supporting-flange 12 it will be obvious that when the hose is reeled on the cylinder each convolution will be exposed to a free circulation of air both inside and outside of the cylinder to insure a quick drying of the hose, and the inclination of the convolutions of the spiral flange 12, since the diameter of the cylinder is the same throughout, provides for a perfect drainage of the water that is left in the hose after using.

The hose 13 carries at one end the usual nozzle 14, and at its other upper end the said hose is fitted to the outer end of a hose-connecting pipe 15. The said hose-connecting pipe 15 is arranged within the upper part of the reel-cylinder 5 and has the outer end thereof project between a pair of the bars or

slats 8 to provide for a connection of the hose therewith, and at its inner end the said hose-connecting pipe is provided with an upright bearing extension 16, that projects centrally through and above the upper head 6 of the cylinder and turns freely in the stuffing-box or gland 17, arranged at the upper end of an upright arched piping-frame 18.

The upright arched piping-frame not only provides for the bearing-support of the upper end of the reel-cylinder, but also provides for supplying the hose with water, and said piping-frame essentially consists of an upper horizontal pipe 19 and the opposite parallel pipes 20 and 21, respectively connected to the opposite ends of the horizontal pipe 19 by elbows 22. The upright pipe 20 carries the stuffing-box or gland 17 and is shorter than the upright pipe 21, which pipe 21 is suitably connected, as at 22^a, to the upper end of the upright arm 3 of the U-shaped supporting-base 1, which base therefore also provides means for properly supporting the arched piping-frame in position.

The upright pipe 21 of the piping-frame 18 is provided near its lower end with the separate inlet and drain openings 23 and 24, respectively, and with each of said openings is connected one end of short nipple connections 25 and 25^a, the other ends of which are connected to one side of a cylindrical valve-casing 26. The nipple connection 25 for the inlet-opening 23 is connected to the valve-casing 26 at a point below the nipple connection for the drain-opening 24, and the said valve-casing is provided at one side directly opposite the nipple connection 25 with an inlet-opening 27, with which is adapted to be connected a suitable supply pipe or hose 28 for supplying water to the hose of the reel, and at one side directly opposite the nipple connection 25^a the said valve-casing is provided with a drain-spout 29 to discharge standing water from the arched piping-frame when the supply of water has been cut off therefrom.

The cylindrical valve-casing 26 accommodates for movement therein a normally spring-elevated cylindrical valve-plug 27^a, mounted on the valve-stem 28^a, that works through openings 29^a in the top and bottom of the casing 26, and the upper end of the valve-stem above the casing is provided with a handle 30 to provide for depressing the valve, and the lower end of the valve-stem below the casing is provided with a collar 31, the function of which will be presently referred to. A valve-lifting spring 32 is coiled on the valve-stem 28^a below the valve-plug 27^a, and normally elevates the said valve-plug above the plane of the nipple connection 25 and the water-inlet opening 27 to allow for a free flow of water into the piping-frame 18 and therefore into the hose 13. In its normally-elevated position the valve-plug 27^a covers the openings communicating with the nipple connection 25^a and the drain-spout 29 to prevent any leakage of water at this point when the hose is supplied with running water. By depressing the valve-stem by means of the handle 30 the position of the valve-plug 27^a will be reversed—that is, to uncover the drain-openings of the valve-casing and to cover the inlet-opening thereof to provide for cutting off the supply of water, as shown in Fig. 4 of the drawings, and at the same time allowing for the standing water in the piping-frame to freely drain.

In its depressed position the lower end of the valve-stem 28^a above the collar 31 is adapted to be engaged by the latch-hook 33, formed integrally at one end of a valve-operating lever 34. The latch-hook 33 embraces the stem 28^a between the collar 31 and the lower end of the valve-casing 26, and therefore holds the valve-plug in the position illustrated in Fig. 4 of the drawings. The said latch-lever 34 is pivotally supported at an intermediate point, as at 35, on the upright arm 3 of the base 1, and turns on the collar 36, formed on said upright arm. The end of the lever 34 opposite the latch-hook 33 thereof is arranged to extend under the lower end of the reel-cylinder 5 in the path of a trip-lug 37, projected from the lower cylinder-head 6, so that as the reel-cylinder is rotated in the act of unwinding the hose by pulling out the nozzle end of the hose the said lug will be carried against the lever 34 at one side of the same and will disengage the hook 33 from the valve-stem 28, so that the spring 32 will be free to lift the valve-plug 27^a to "turn on" the water.

The reel-cylinder 5 is rotated in a direction to wind up the hose thereon by means of a short operating-shaft 38, that is journaled at one end in a bearing 39, fitted on the piping-frame 18, and at its other end in the lower end of a bearing-arm 40, depending from the upper horizontal pipe of said piping-frame. The shaft 38 carries at its outer end a crank-handle 41 and at its inner end a pinion 42, that engages a circular rack or gear-ring 43, formed on the upper head 6 of the reel-cylinder. While the hose is being reeled on the reel-cylinder by the means described, the separate convolutions thereof are guided in place between the convolutions of the flange 12 by means of an upright guide-roller 44. The upright guide-roller 44 is arranged at one side of the reel-cylinder 5 and is provided at its lower end with a bearing-stud 45, detachably fitting in the bearing-opening 46, formed in the base 1, and at its upper end the roller 44 is provided with a pin-socket 47, that detachably receives the bearing-pin 48, also detachably fitting in the inner end of a horizontal bracket-arm 49, suitably attached to and projected from one side of the upright pipe 21 of the piping-frame 18.

The operation and many advantages of the herein-described automatic hose-reel will be readily apparent to those skilled in the art without further description, and it will be understood that changes in the form, proportion, and the minor details of construction

may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a hose-reel, a U-shaped supporting-base, an upright revolving reel-cylinder stepped at its lower end on one of the upright arms of the base and carrying at its upper end a pipe having a vertical extension, the hose connected with the pipe at the upper end of the reel, an upright arched piping-frame supported at its lower end by one of the upright arms of the U-shaped base, and having a bearing connection at its upper end with said vertical pipe extension to provide a bearing-support for the upper end of the reel and also to lead the supply of water into the hose, and a combined drain and supply valve suitably connected with the arched piping-frame above its connection with the U-shaped base, substantially as set forth.

2. In a hose-reel, the combination of an upright revolving reel-cylinder having a trip-lug, the hose, a pipe leading to the cylinder and connected to the hose thereon, said pipe being provided with separate inlet and drain openings, a cylindrical valve-casing having separate nipple connections with the inlet and drain openings of the pipe and provided at one side with an inlet-opening and a drain-opening respectively opposite the corresponding connections with said pipe, a spring-elevated valve-plug mounted within said casing and provided with a stem working through the bottom of the casing, and a suitably-supported lever having a suitable connection with the valve-stem to hold the valve-plug in its lowered position, and adapted to be disposed in the path of the trip-lug on the reel-cylinder, substantially as set forth.

3. In a hose-reel, the combination of an upright revolving reel-cylinder having a trip-lug, the hose, a pipe leading to said cylinder and connected with the hose thereon, said pipe being provided with separate inlet and drain openings, a cylindrical valve-casing having separate nipple connections respectively with said inlet and drain openings of said pipe, said valve-casing being also provided at one side with an inlet-opening and a drain-spout respectively opposite the corresponding nipple connections, a cylindrical valve-plug mounted within said casing and provided with a stem working through the top and bottom of the casing, said stem being provided at its upper end with a handle and at its lower end with a collar, a spring arranged within the valve-casing under the valve-plug, and a valve-operating lever pivotally supported at an intermediate point and provided at one end with a latch-hook adapted to embrace the valve-stem above the collar thereon, one end of said valve-lever being adapted to be disposed in the path of the trip-lug on the reel-cylinder, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

MICHAEL H. KERN.
HENRY TIDEMAN.

Witnesses:
W. L. MOORE,
MAY QUINLAN.