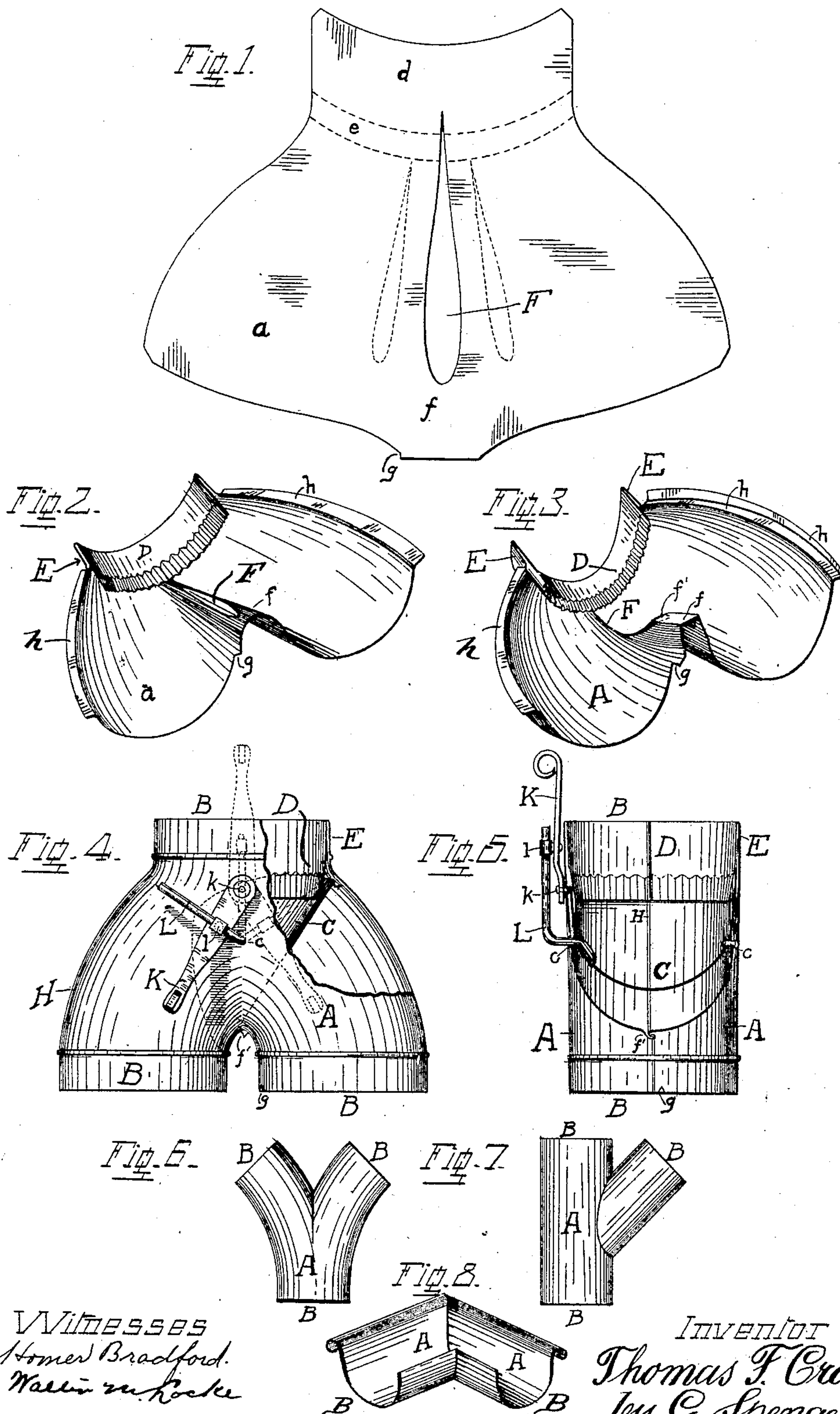


No. 832,040.

PATENTED OCT. 2, 1906.

T. F. CRARY.
CONSTRUCTION OF RAIN WATER CUT-OFFS.
APPLICATION FILED JUNE 19, 1905.



UNITED STATES PATENT OFFICE.

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CONSTRUCTION OF RAIN-WATER CUT-OFFS.

No. 832,040.

Specification of Letters Patent.

Patented Oct. 2, 1906.

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To all whom it may concern:

Be it known that I, THOMAS F. CRARY, a citizen of the United States, residing at Middleport, Meigs county, State of Ohio, have invented certain new and useful Improvements in the Construction of Rain-Water Cut-Offs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to sheet-metal articles, like branch joints, double elbows, or rain-water cut-offs, &c., which serve as a junction where three branches or pipes come together, these devices providing an open tubular attaching end, neck, or nipple for each of the three pipes to be brought together at such a point. At such a junction the contents of two pipes are usually consolidated and received by the third pipe for further transmission, or this arrangement is reversed, as in the rain-water cut-off, in which latter case means are provided in addition within the junction whereby the discharge from the single receiving-pipe may be switched to be received by either one of the two other pipes. My invention is illustrated in connection with such a rain-water cut-off.

In one of my former patents, granted to me on October 13, 1891, I show a rain-water cut-off constructed out of several pieces. In one of my later patents, issued July 2, 1901, I show the construction improved by reduction of the pieces to two. My present invention relates also to a two-piece construction, but as against the latter patent it is considerably simplified, so as to facilitate the manufacture and to produce an article of better finish and appearance.

Furthermore, a necessary part required in a rain-water cut-off is added without complicating the construction.

Another feature is also a device to lock the valve or cut-off proper, whereby passage is diverted from one pipe to the other, in either one of its adjusted positions to hold it against accidental disturbance.

In the following specification and particularly pointed out in the claims at the end thereof is found a full description of my invention, together with its arrangement, parts, and construction, which latter is also illus-

trated in the accompanying drawings, in which—

Figure 1 shows the blank for one of the two complementary sections, which together form the complete housing or shell of such a device, junction, or rain-water cut-off, the two blanks being substantially alike. Fig. 2 in a perspective view shows one of the blanks after having gone through a preliminary step whereby it is worked toward its final shape. Fig. 3 in a similar view shows one of the blanks shaped to form one of the two complementary sections complete, the connection of two of such sections constituting a cut-off complete. Fig. 4 shows a side elevation of a cut-off complete with parts broken away. Fig. 5 shows a vertical central cross-section of the same. Figs. 6 and 7, at reduced scale, show my invention applied to similar devices, it being a double elbow in the first figure and a branch joint in the other. Fig. 8 shows a similar application to the turn or elbow of a roof-gutter or eaves-trough.

A in Fig. 3 indicates one of the complementary sections shaped complete out of a blank *a*, as shown in Fig. 1, Fig. 2 showing an intermediate step performed toward obtaining this final shape. Two of such sections are connected to each other to form the cut-off complete as the same is shown in Figs. 4 and 5. The completed device presents three open tubular attaching ends or nipples *B*, which connect with the ends of the pipes in connection with which the device is to be used. A cut-off *C*, pivotally supported at *c c* on opposite sides, is used to direct the water received at the upper opening *B* toward either one of the two lower ones. To prevent leakage and spilling around the, at the time elevated, edge of cut-off *C*, an internal downwardly-projecting flange *D* is provided, under and behind which the edge of the cut-off passes, as best shown in the broken-out part of Fig. 4. This flange is the inwardly and downwardly turned continuation of an upturned nipple or neck *E*, both being integral parts of the general blank *a* and indicated at *d* and *e* in Fig. 1. In Figs. 2 and 3 the complementary semitubular parts of each of this neck and flange appear, the flange being turned inwardly over the outwardly-extending neck portion, so that when the two sections *A* are finally connected, as shown in Figs. 4 and 5, the tubular neck and flange are each formed complete circumferentially.

As a section approaches its final shape the

blank being gradually contracted surplus metal tends to accumulate and is crowded toward the center of each section, which must be taken care of. I do this by cutting it out of the blank beforehand, as shown in Fig. 1, the removed portions being in shape of longitudinal slits or openings F, of which there may be more than one, as shown in dotted lines. The metal below this cut-out and indicated at *f* is also removed, but not until after a blank has been shaped into a section, as shown in Fig. 3, it serving until then to hold for proper and uniform spacing the lower parts of a section as it appears in Fig. 4. This particular metal at *f* is, however, not entirely removed and a small pointed portion is left standing, shaped as shown at *f'* in dotted lines, and which parts by being bent to engage each other when the two sections are brought together aid to produce a firm connection. Similar projections or teats are left standing at the lower edges of the blank, as shown at *g*, which, the metal of the sections overlapping each other at the inner seams, are turned up over the edge of this overlapping metal, so that a teat on one section engages the other section. The other—that is, outer—joints or seams H are formed by the customary lock-seam, the metal for the same being provided at *h*, the beginning of the formation being shown in Fig. 2 and advanced in Fig. 3, the arrangement being such that the upturned metal for the seams may readily engage when the complementary semitubular sections are brought together. This lock-seam is finished in the usual manner, the overlapping metal edges being finally flattened down against the completed shell of the device. The final connection and closure of all seams and crevices is by solder applied in the usual manner or by dipping the entire structure in galvanizing fluid. This includes also the flattened-down teats *f'* and *g* and the opposite metal edges resulting from the cut-out at F, which edges have been shoved toward each other, as shown in Fig. 3, and may more or less overlap.

In Figs. 6 and 7 I show devices which may also be manufactured in a similar manner, the first being a double elbow and the other a so-called "branch joint," the forming and press dies being of course shaped accordingly in each case. The features of this invention may also be applied in the manufacture of the elbows or turns for roof-gutters or eaves-troughs, which are now usually joined mitrally. (See Fig. 8.)

Where the invention is applied as illustrated and a cut-off C is pivotally supported within the completed shell, as shown, it becomes desirable to provide means for holding this cut-off in its adjusted position against accidental disturbances as well as against the action of the water discharging upon it. For such purpose I provide a locking-arm K, pivotally supported at *k* on the outside of the shell of the completed structure. The operating arm or lever L engages with the locking-arm K by means of a knuckle *l*, which is mounted on the latter so as to be free to turn while it adjusts itself to the changing position of the handle as this latter is swung by means of the locking-arm, said handle sliding through this knuckle while moving with the arm. (Note dotted positions shown in Fig. 4.)

Having described my invention, I claim as new—

1. A blank for one of two complementary sections, which when shaped and longitudinally connected, form a rain-water cut-off which has three pipe-attaching openings from one of which a neck extends outwardly which supports an inwardly and downwardly extending flange, said blank containing also the metal for the complementary half of this neck and flange and having an elongated opening in its middle portion, to remove metal which otherwise would crowd together thereat during shaping under the press-dies.

2. A blank for one of two complementary sections which, when shaped complete and longitudinally connected, form a rain-water cut-off with three pipe-attaching tubular necks, each section containing the three, semicircular, complementary parts which form such necks, surplus metal being removed from the middle portion of each blank, to prevent crowding thereat when the blank is shaped to form these complementary edges.

3. A rain-water cut-off, consisting substantially of three pipe-attaching necks, a cut-off valve supported within to direct the water an operating-lever for switching this valve, a pivotally-supported locking-arm to actuate this operating-lever and a knuckle pivotally attached to the arm and engaging the lever to cause this latter to move with the former.

In testimony whereof I hereunto set my hand in presence of two witnesses.

THOMAS F. CRARY.

In presence of—

J. B. HORNING, Jr.,
M. R. DOWNING.