

(No Model.)

2 Sheets—Sheet 1.

J. G. MITCHELL.
SECTIONAL ROOF FOR STILLs.

No. 409,998

Patented Aug. 27, 1889.

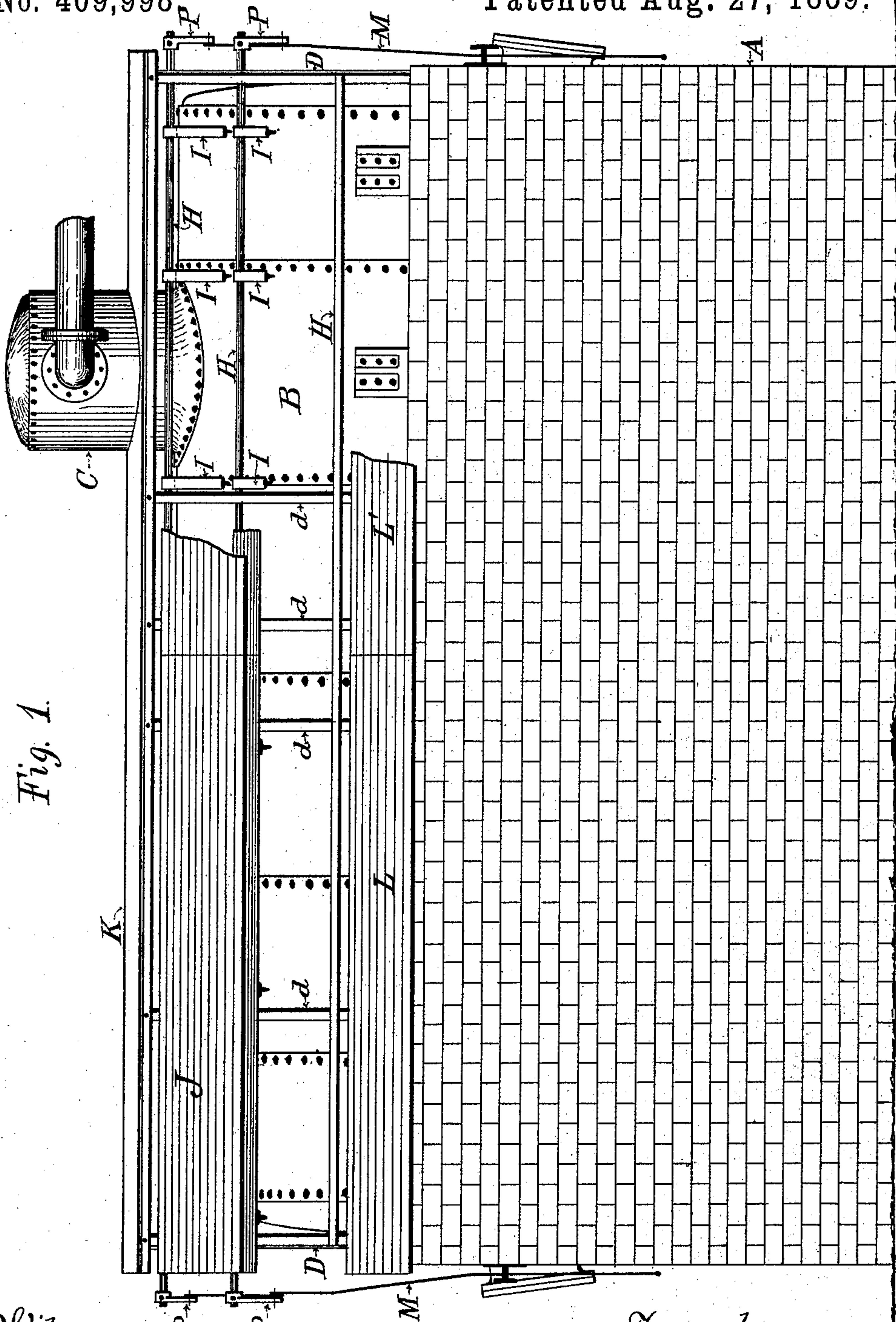


Fig. 1.

Witnesses.
F. Norman Dixon
Lewis Altmaier.

Inventor.
James G. Mitchell
By his attorney
Strawbridge & Taylor

(No Model.)

2 Sheets—Sheet 2.

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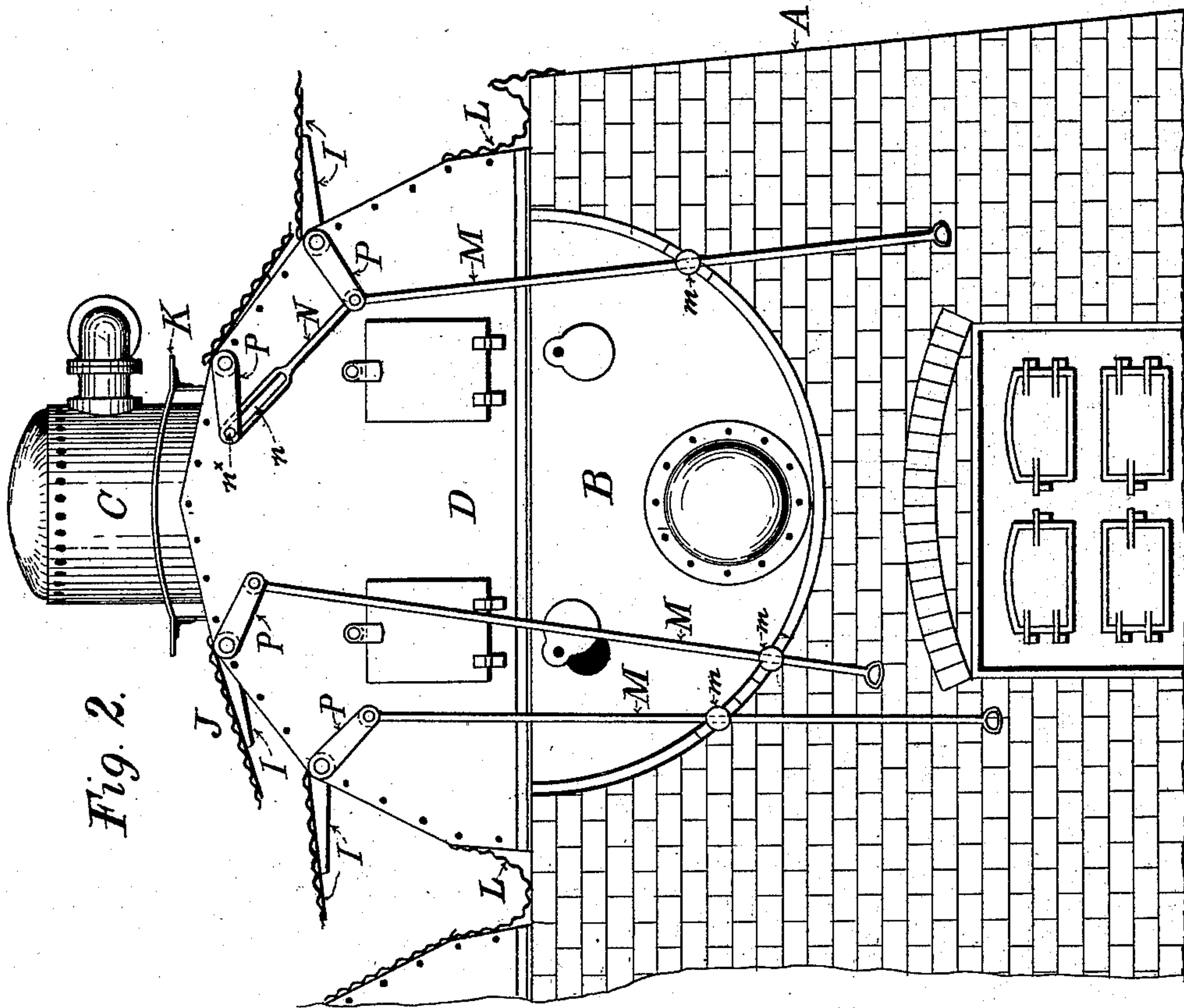


Fig. 2.

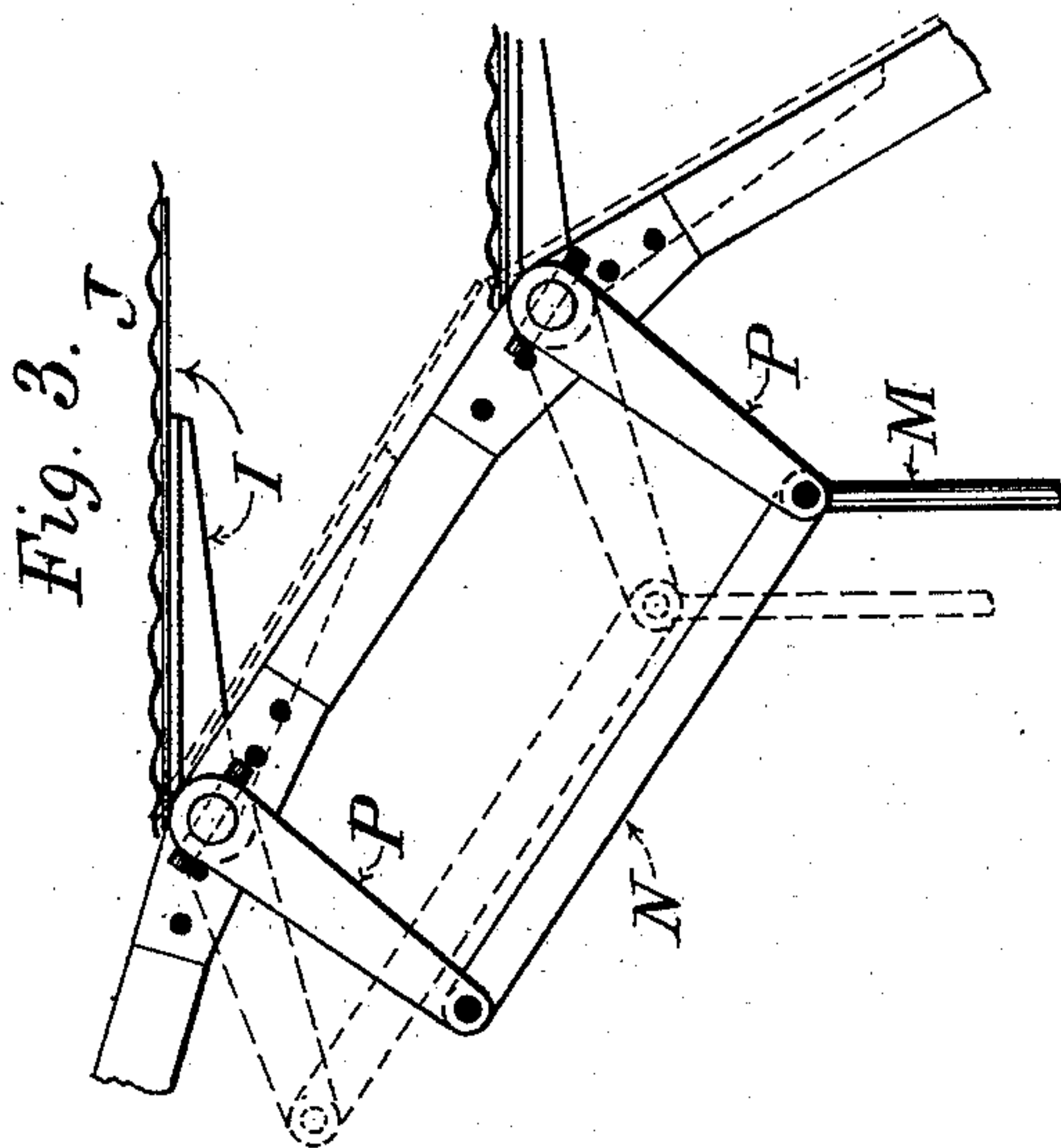


Fig. 3.

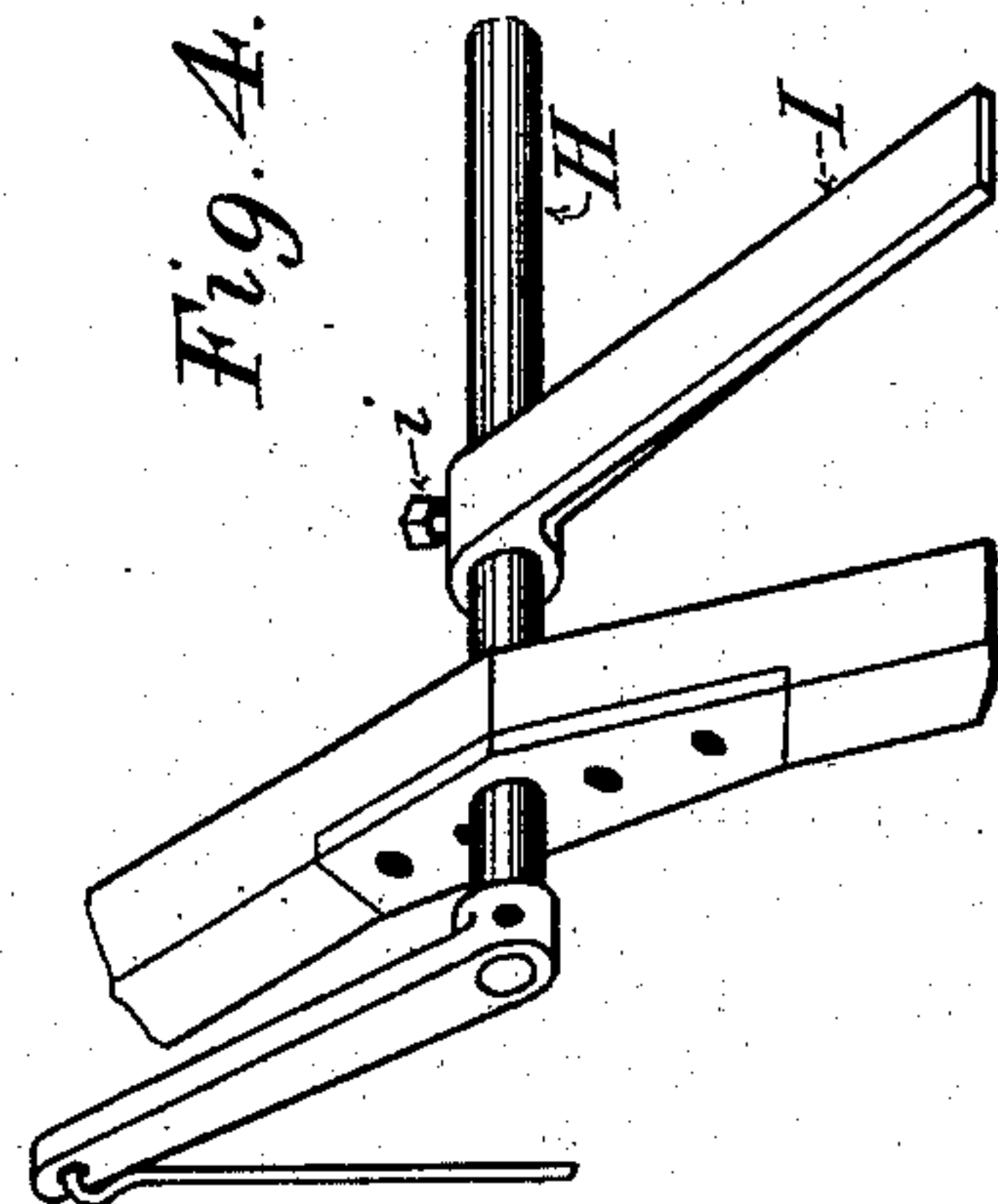


Fig. 4.

Witnesses.
J. Norman Dixon
Lewis Altmair.

Inventor
James G. Mitchell
By his attorneys
Strawbridge Taylor

UNITED STATES PATENT OFFICE.

JAMES G. MITCHELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE ATLANTIC REFINING COMPANY, OF SAME PLACE.

SECTIONAL ROOF FOR STILL.

SPECIFICATION forming part of Letters Patent No. 409,998, dated August 27, 1889.

Application filed March 12, 1889. Serial No. 302,998. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. MITCHELL, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improved Sectional Roof for Stills, of which the following is a specification.

My invention relates to contrivances employed to protect and cover stills especially those of the cylindric form variety employed in oil refineries, and its object is to provide a cheap and durable roof-like structure which can be easily opened and closed to expose the still to or protect it from the atmosphere.

In the drawings, Figure 1 is a side elevational view of a still provided with a roof embodying my invention, part of the roof sections being broken away to exhibit the arrangement of the hinge rods. Fig. 2 is a front elevational view of the still of Fig. 1. Fig. 3 is a detailed elevational view of a form of device whereby two roof sections may be simultaneously opened. Fig. 4 is a detailed perspective view of the simplest form of lever arm and depending rod, showing also the hinge rod, and a section supporting arm.

Similar letters of reference indicate corresponding parts.

In the drawings, A is the masonry which incloses the furnace, and B the still set in said masonry above the furnace. C is a dome for the vapors from the still. The roof shown is divided into a series of sections each of which extends longitudinally of the still and the aggregate area of which sections is sufficient to completely cover that portion of the individual still to which they are applied which exists above the masonry. The sections are practically independent of each other, and to such end are supported and manipulated by means of the following devices:

D are supporting end plates situated one at each end of each still. They rest as to their bases upon the masonry, and are in height and breadth about co-extensive with so much of the still as exists above the masonry. The sides and tops of these plates are preferably formed with a number of facets or straight edge faces, and these straight portions are of

corresponding size and disposition in each one of a pair of plates.

E are a series of arches or supporters of which four are shown as employed in Fig. 1, which rest as to their extremities upon the brick work of the furnace, and extend across the still. These arches correspond in outline to the outline of the end plates, and are designed to afford support to the hinge rods and roof sections, whereof hereinafter.

H are a series of hinge rods, being each the axial rod of a section, each extending from the end to a point midway of the still, supported in bearings formed for it in the supporting arches between the end and center of the still, and having its outer extremity entered in the supporting plate D of that end of the still in connection with which it is mounted. The rods are entered in the supporting plates each in proximity to the upper end of a straight portion or facet, and the inner extremities of corresponding rods on opposite ends of the still almost meet at the center.

I are the section-supporting arms, a series of which are as to their bases attached to each hinge rod, conveniently by the screws as shown, in such manner that they turn with said rod, and all of which arms upon a given rod project therefrom in a common plane.

J are the roof sections or longitudinally extending plates which together compose the roof proper, and each of which is preferably formed of sheet iron with longitudinal corrugations. These sections extend from end to center of a still and are of such breadth as is proper in view of the number of sections into which the roof is subdivided. Each section is attached to a hinge rod by being mounted upon and attached by bolts or rivets to its sheet supporting arms.

In Fig. 2 the end plates are shown as embodying eight facets. The uppermost or central section of the roof, which I designate K, extends from end to end of the still, covering the two top facets of each supporting plate, and is permanently attached to said plates in any convenient manner. The hinge rods of the upper movable sections on each side of said fixed section K are situated beneath said

section and so as to be protected by it, and said upper movable sections are of sufficient breadth to overlap to a slight extent the next sections beneath them.

5 L L' are metal or other eaves irons fixed and extending respectively from end to center of each still, beneath the lowermost movable sections.

It will now be apparent that the assembled
10 sections form a roof or protecting cover for the still, which when closed serve not only to protect the still from the weather, but also to retain its heat, and when open to expose the still to the atmosphere.

15 As a means for manipulating the roof sections in order to open or close them, I provide one end of each hinge rod with a lever arm P, which projects outward from the hinge rod at a convenient angle. In the left
20 hand side of Fig. 2, each lever arm is shown as provided with a separate and independent manipulating rod M, provided at its lower end with a handle and intermediate of its length engaged in a screw clamp device *m*.
25 By these devices the roof sections may be one at a time opened and each when opened secured in a desired adjusted position.

In the right hand side of Fig. 2 and in Fig. 3, I show devices by the employment of which
30 two of the roof sections may be so coupled together that a single manipulating rod will serve to control them both. Referring to Fig. 3, the manipulating rod is attached to the lever arm of the lower of two roof sections, while one end of a link N is pivotally
35 connected to the upper end of the manipulating rod, and the other end to the free end of the arm of the upper roof section of the two to be coupled, so that when the rod M is drawn downward it will raise both roof sections contemporaneously.

In the right hand side of Fig. 2, is shown an arrangement somewhat similar to that of Fig. 3, in which, however, the link N embodies a longitudinal slot *n* in which is entered
45 a stud *n*^x on the free end of the lever-arm of the upper roof section, so that both sections being assumed closed, when traction is exerted upon the manipulating rod the lower roof-section will be immediately lifted, the slotted link simply sliding past the stud *n*^x, and when the parts reach the positions shown in said figure, the manipulating rod may be secured in such position, leaving the lower section
50 open and the upper one closed, while further traction upon the rod will occasion the lifting of the upper section and the further lifting of the lower section.

It is obvious that the hinge rods and roof
60 sections might be made to extend the entire length of the still instead of being centrally divided as shown, without departure from my invention.

Having thus described my invention, I
65 claim:—

1. The combination to form a sectional roof for a cylindrical or other shaped still, of supporting plates, a series of hinge rods, a series of roof sections attached to and turning with said rods, and arranged to, when closed, fit or conform as a whole to the shape of the still to which they are applied, and means for turning said hinge rods, substantially as set forth. 70

2. The combination to form a sectional roof for a cylindrical or other shaped still, of supporting plates, a series of hinge rods, a series of roof sections formed of corrugated iron, attached to and turning with said rods, and arranged to when closed, fit or conform as a whole to the shape of the still to which they are applied, and means for turning said hinge rods, substantially as set forth. 75 80

3. The combination to form a sectional roof, of end plates, roof sections formed of corrugated iron, hinge rods, lever arms attached to said hinge rods, and manipulating rods for operating said lever arms, substantially as set forth. 85

4. The combination to form a sectional roof, of end plates, roof sections formed of corrugated iron, hinge rods, lever arms attached to said hinge rods, manipulating rods, and slotted links, substantially as set forth. 90

5. The combination to form a sectional roof, of end plates, hinge rods, supporting arms projecting from said rods, roof sections mounted upon said arms, lever arms attached to said hinge rods, and manipulating rods to open and close said roof sections, substantially as set forth. 95 100

6. The combination to form a sectional roof of a pair of end plates, having corresponding sectional faces, roof sections each of breadth equal to the length of one of said faces, hinge rods upon which said roof sections are mounted, lever arms upon said hinge rods, and manipulating rods connected to said lever arms, substantially as set forth. 105

7. In a still roof, in combination, the end plates, the hinge rods, the roof sections, the lever arms, the links, and the manipulating rods, substantially as set forth. 110

8. In a still roof, in combination, the supporting arches, the hinge rods, the roof sections, the lever arms, the link, and the manipulating rods, substantially as set forth. 115

9. In a still roof, in combination, the supporting arches, the hinge rods, the roof sections, the lever arms, the slotted links, and the manipulating rods, substantially as set forth. 120

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 5th day of February, A. D. 1889.

JAMES G. MITCHELL.

In presence of—

F. NORMAN DIXON,
LEWIS ALTMAIER.