

No. 733,145.

PATENTED JULY 7, 1903.

E. M. CAMPEN.
MOLD.

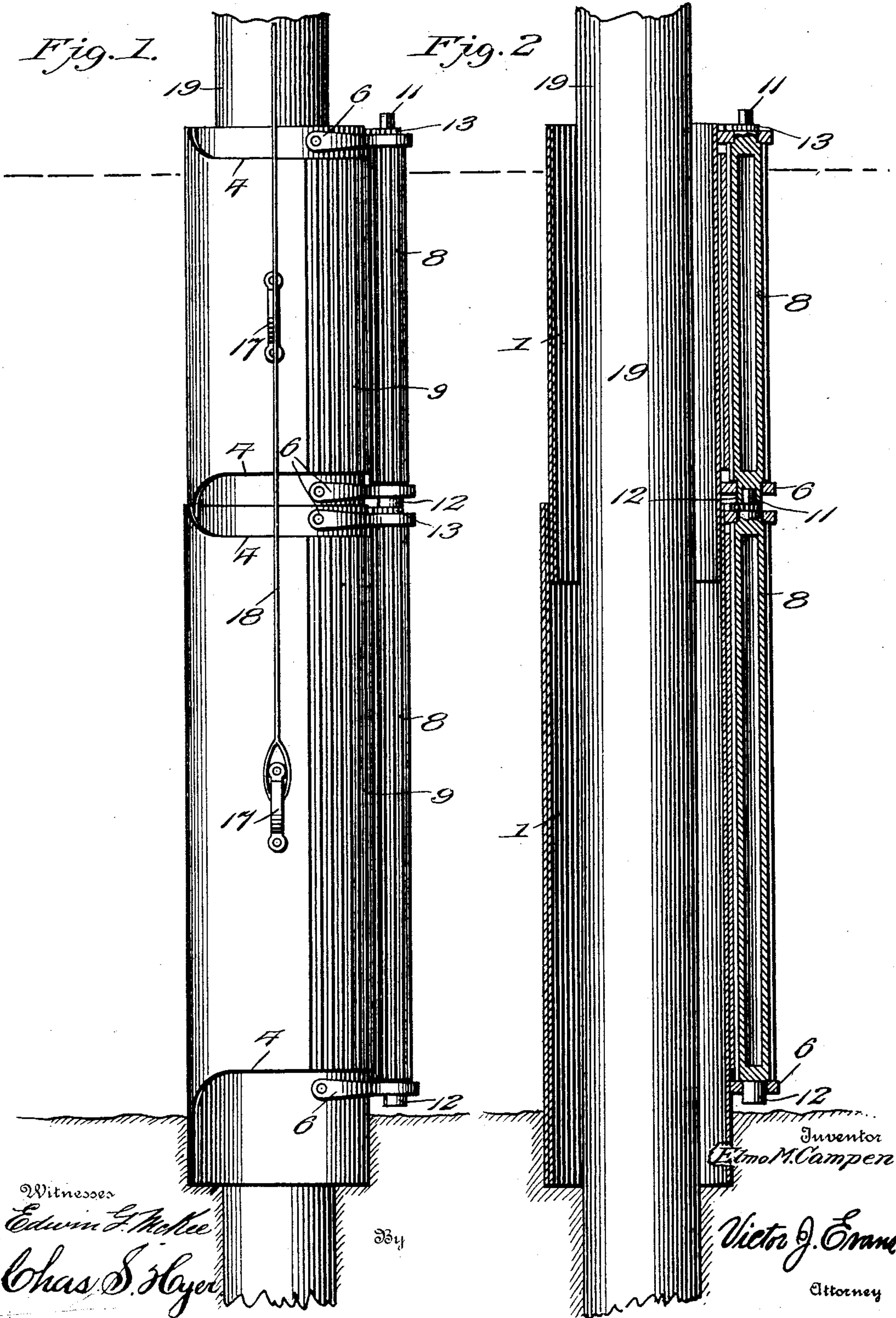
APPLICATION FILED DEC. 10, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.



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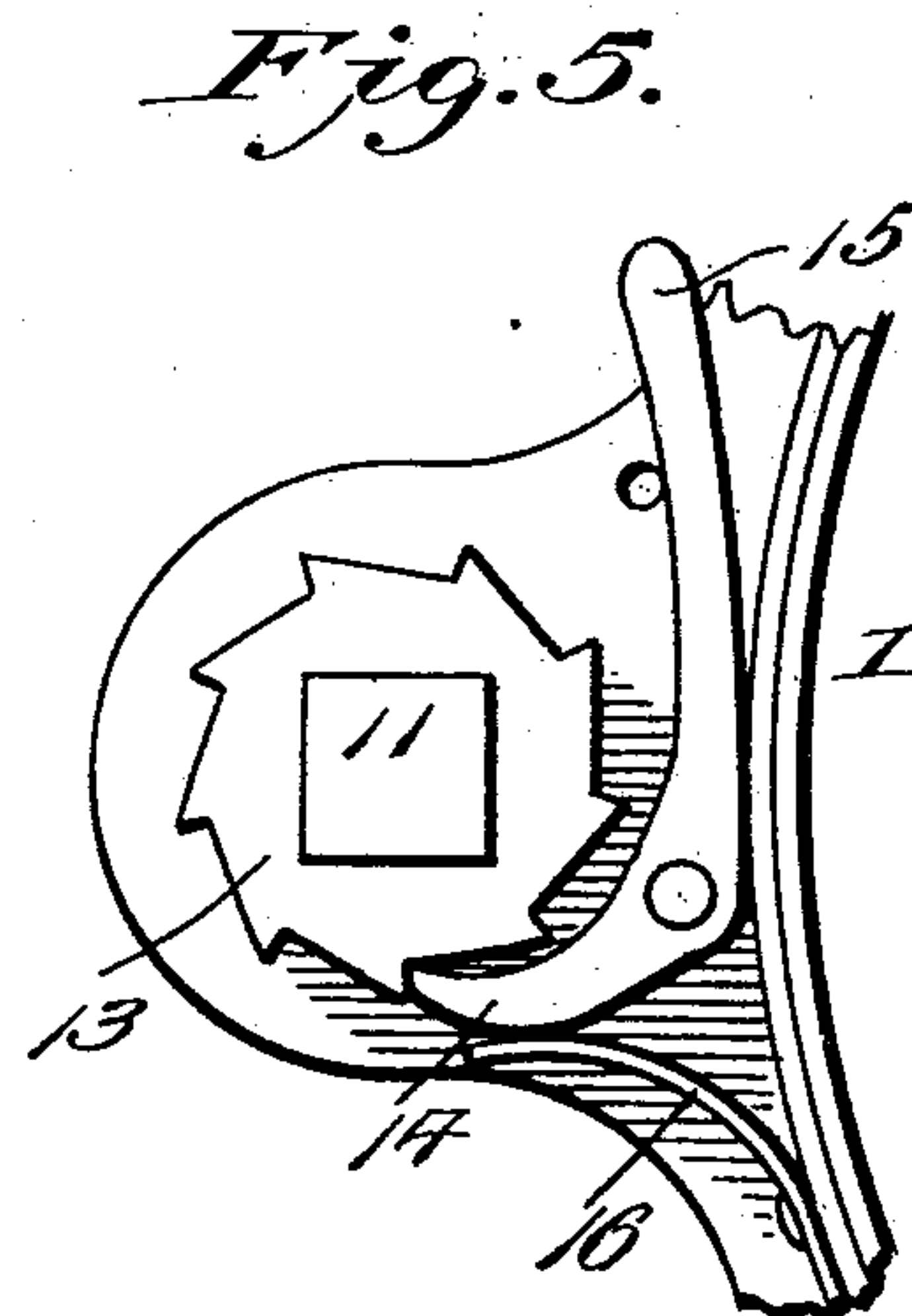
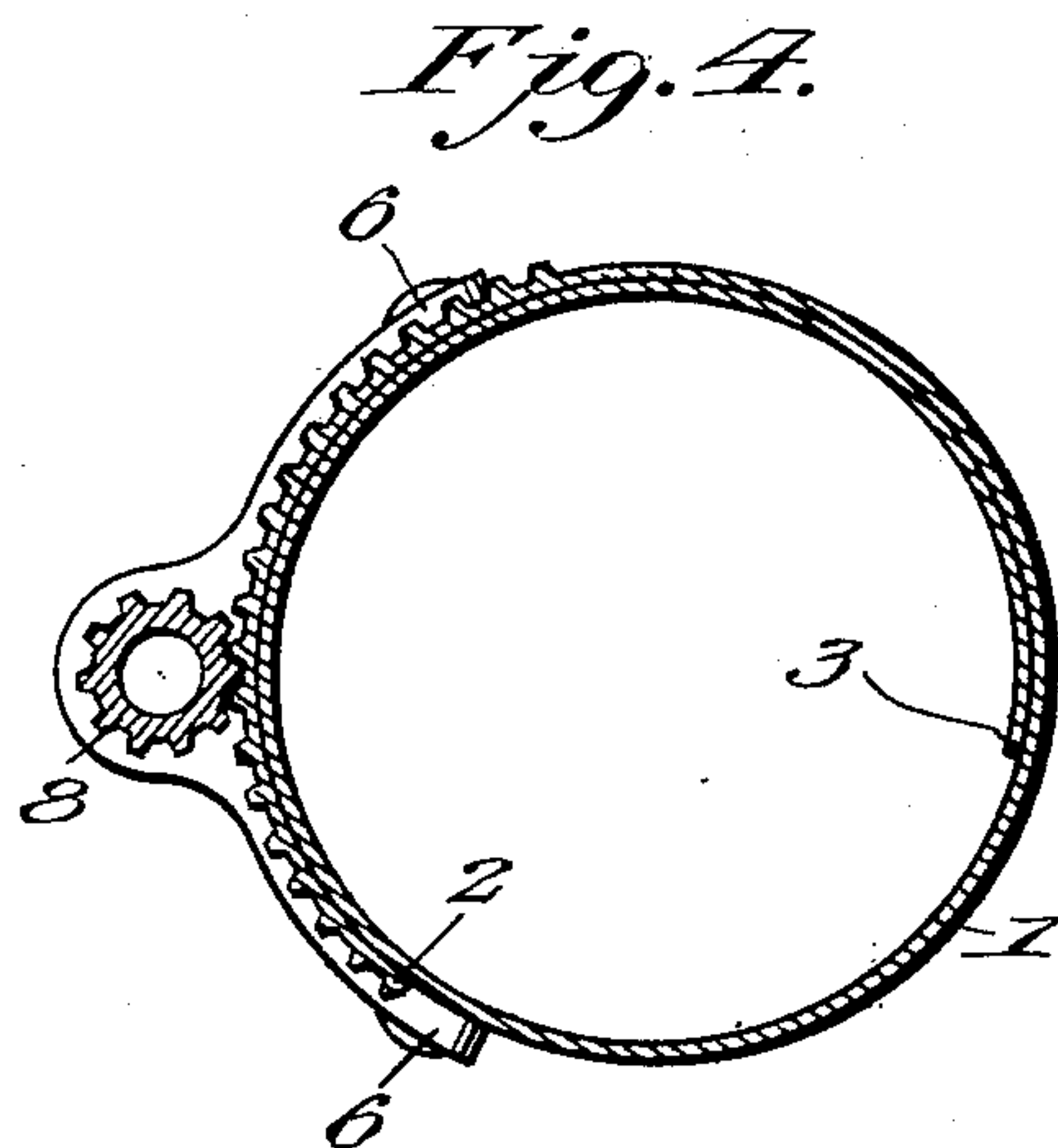
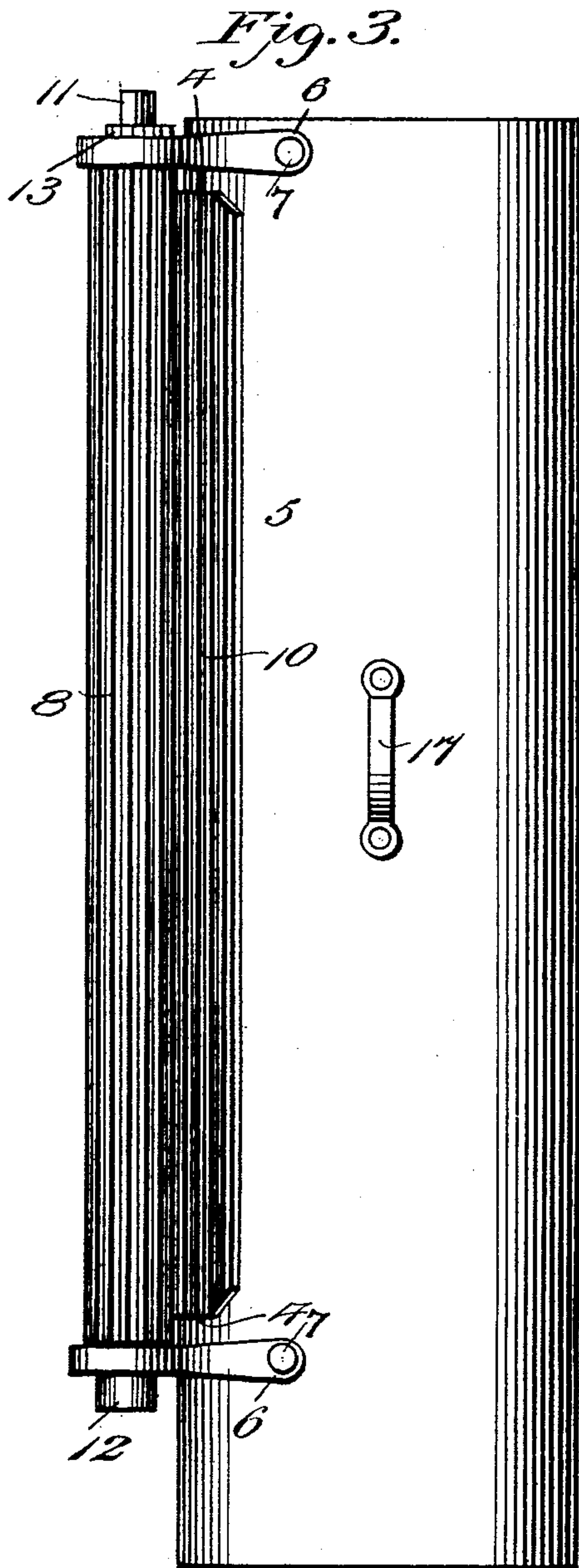
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NO MODEL.

2 SHEETS—SHEET 2.



Witnesses
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UNITED STATES PATENT OFFICE.

ELMO M. CAMPEN, OF TAMPA, FLORIDA.

MOLD.

SPECIFICATION forming part of Letters Patent No. 733,145, dated July 7, 1903.

Application filed December 10, 1902. Serial No. 134,683. (No model.)

To all whom it may concern:

Be it known that I, ELMO M. CAMPEN, a citizen of the United States, residing at Tampa, in the county of Hillsboro and State of Florida, have invented new and useful Improvements in Molds, of which the following is a specification.

This invention relates to molds, the object in view being to provide a simple, effective, and reliable mold which is adjustable and sectional and especially designed for placing cement armor on wooden piles, telegraph and telephone poles, and like articles which are usually exposed to moisture or contact with water.

One of the principal objects of the present invention is to provide a sectional mold each section of which is adjustable to suit the size of the cement armor and the size of the pole or pile around which the armor is to be placed, the sections being adapted to be fitted one to the other and so coupled together that when placed end to end all of the sections may be simultaneously adjusted and either contracted or expanded in size, the simultaneous adjustment of the several sections being effected at a single point above the surface of the water and by a single operation, avoiding the necessity of employing the services of an expert diver. It is also intended to make the sections of varying lengths, so that a mold of any desired length may be set up and the several sections thereof simultaneously and accurately adjusted to suit requirements.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a sectional mold constructed in accordance with the present invention, but two sections being shown with a pile or post inclosed therein. Fig. 2 is a diametrical longitudinal section through the same, showing a pile or post in elevation therein. Fig. 3 is an enlarged side elevation of one of the sections. Fig. 4 is a cross-section through the mold, showing one of the brackets and the manner of overlapping the edges of the

body of the mold. Fig. 5 is an enlarged detail plan view showing the means for fixing the adjustment of the mold.

Like reference-numerals designate corresponding parts in all figures of the drawings.

The body of the improved mold is in the form of a flexible sheet, (indicated at 1,) the said body being preferably constructed of comparatively light sheet metal rolled to a sufficient degree of hardness to give the necessary spring or elasticity thereto to insure the proper expansion of the body of the mold when the contractile tension thereon is relieved. The length of the sheet forming the body of the mold is equal to the desired length of the completed section of the mold, while the width of the sheet is sufficient to enable the opposite vertical edges thereof to overlap each other to a considerable extent, as shown in Fig. 4, wherein 2 designates the outer edge of the mold, and 3 the inner edge of the same, the inner edge being adapted to slide upon the inner surface of the mold-body, while the outer edge 2 moves against the exterior surface thereof. The corners of the sheet forming the body of the mold are cut away at the outer edge, as shown at 4, to reduce the width of the body at that point for the purpose of forming a broad flexible tongue 5, which will pass between a pair of brackets 6, secured to the body of the mold by suitable fasteners 7, the said brackets forming bearings for the opposite ends of a barrel-pin 8, extending substantially the entire length or height of the mold-section and intermeshing with the teeth 9 of a barrel-rack 10, consisting of a series of teeth extending vertically entirely across the broad tongue 5, as clearly shown in Figs. 1 and 3. The barrel-pin 8 is provided at one end with a squared shank 11 and at the opposite end with a head or chuck 12, provided with a socket corresponding in size with the squared end 11 and adapted to receive the squared end of a corresponding and adjoining barrel-pin on another section, as illustrated in Fig. 2. The barrel-pin of each section is also provided at the shank end with a ratchet wheel or disk 13 and mounted on one of the brackets 6. Adjacent thereto is a pivotally-supported pawl or detent 14, provided with an operating-arm or lever-handle 15 and

pressed in the direction of the ratchet-wheel 13 by means of a suitable spring 16, the said pawl and ratchet serving to maintain or fix the adjustment of the mold when brought to the desired size. Each section of the mold is further provided at opposite points with handles 17, adapted to assist in the lowering of the mold into place, the said handles being also designed to receive hoisting ropes or cables 18 where the mold-sections have to be lowered to a considerable distance beneath the surface of the water. After placing the first or lower section in position the second section is then secured above and upon the first. By attaching ropes or cables to the handles of the first or lower section the several sections may be lowered into the water as fast as they are placed one upon the other and connected, care being taken to secure each section before it is lowered beneath the surface of the water in order that in removing the mold as a whole all sections may be loosened simultaneously. After all the sections are in place the sand and mud, &c., should be pumped from the bottom of the mold to at least ten or twelve inches, after which the sand and cement mixed and while in a soft plastic condition should be pumped into the bottom of the mold, which prevents any separation between the sand and cement. As the cement mixture rises in the mold and around the pile (shown at 19 in Figs. 1 and 2) the water is forced out at the side joints and top of the mold, and after the mixture has set or hardened sufficiently the mold-sections may be removed. This is accomplished by releasing the pawl at the top of the mold and turning the upper barrel-pin, which through its connection with the lower barrel-pinions effects the simultaneous turning of all the pinions and the simultaneous expansion of all the mold-sections, which may then be drawn to the surface and removed.

By reason of the pinions and racks extending substantially the entire height of the mold-sections the strain is equally distributed throughout the length of the mold-sections and all cramping and binding avoided. By connecting or coupling the barrel-pinions in the manner set forth the adjustment of one pinion effects the adjustment simultaneously and equally of all the pinions. The length of the pinions is so regulated by preference that the lower end of one section fits or telescopes within the upper end of the adjoining lower section, thus forming a continuous wall from the bed of the stream to the required height above the surface of the water. The armor thus molded about a submerged pile or post effectually protects the same from the effects of the water and destructive enemies

and is much cheaper than the terra-cotta and similar pipe now employed for the purpose, the labor of armoring piles and posts and the like being also materially reduced.

It will be apparent that the sections of the mold may be made in various sizes to suit the requirements and that other changes may be made in form, proportions, and minor details of construction without departing from the principle or sacrificing any of the advantages of this invention.

Having thus fully described the invention, what is claimed as new is—

1. An adjustable mold comprising a flexible body in the form of a sheet having its edges overlapped to slide one upon the other and having the opposite corners of the outer edge cut away to leave a broad tongue, a barrel-rack consisting of teeth extending substantially the entire width of the tongue, brackets on the body at opposite sides of the tongue, and a barrel-pinion journaled at its ends in said brackets and meshing with the teeth of the rack, said pinion being provided at its extremities with means for coupling the same to the pinion of a similar mold.

2. A sectional mold for the purpose specified, comprising a series of sections each consisting of a flexible body in the form of a sheet having its edges overlapped to slide one upon the other, barrel-pinions extending substantially the entire length of the mold-sections and each adapted to engage the teeth on the outer edge of its respective mold-section, and detents for fixing the adjustment of the barrel-pinions, the said pinions being provided at their adjoining ends with interlocking means whereby the said pinions are coupled together for simultaneous rotation, substantially as described.

3. An adjustable mold comprising a flexible body in the form of a sheet having its edges overlapped to slide one upon the other and having the opposite corners of the outer edge cut away to leave a broad tongue, a barrel-rack consisting of teeth extending substantially the entire width of the tongue, brackets on the body at opposite sides of the tongue, a barrel-pinion journaled at its ends in said brackets and meshing with the teeth of the rack, said pinion being provided at its extremities with means for coupling the same to the pinion of a similar mold, and pawl-and-ratchet devices for fixing the adjustment of the mold.

In testimony whereof I affix my signature in presence of two witnesses.

ELMO M. CAMPEN.

Witnesses:

M. G. GIBBONS,
E. O. ROGERS, Jr.