

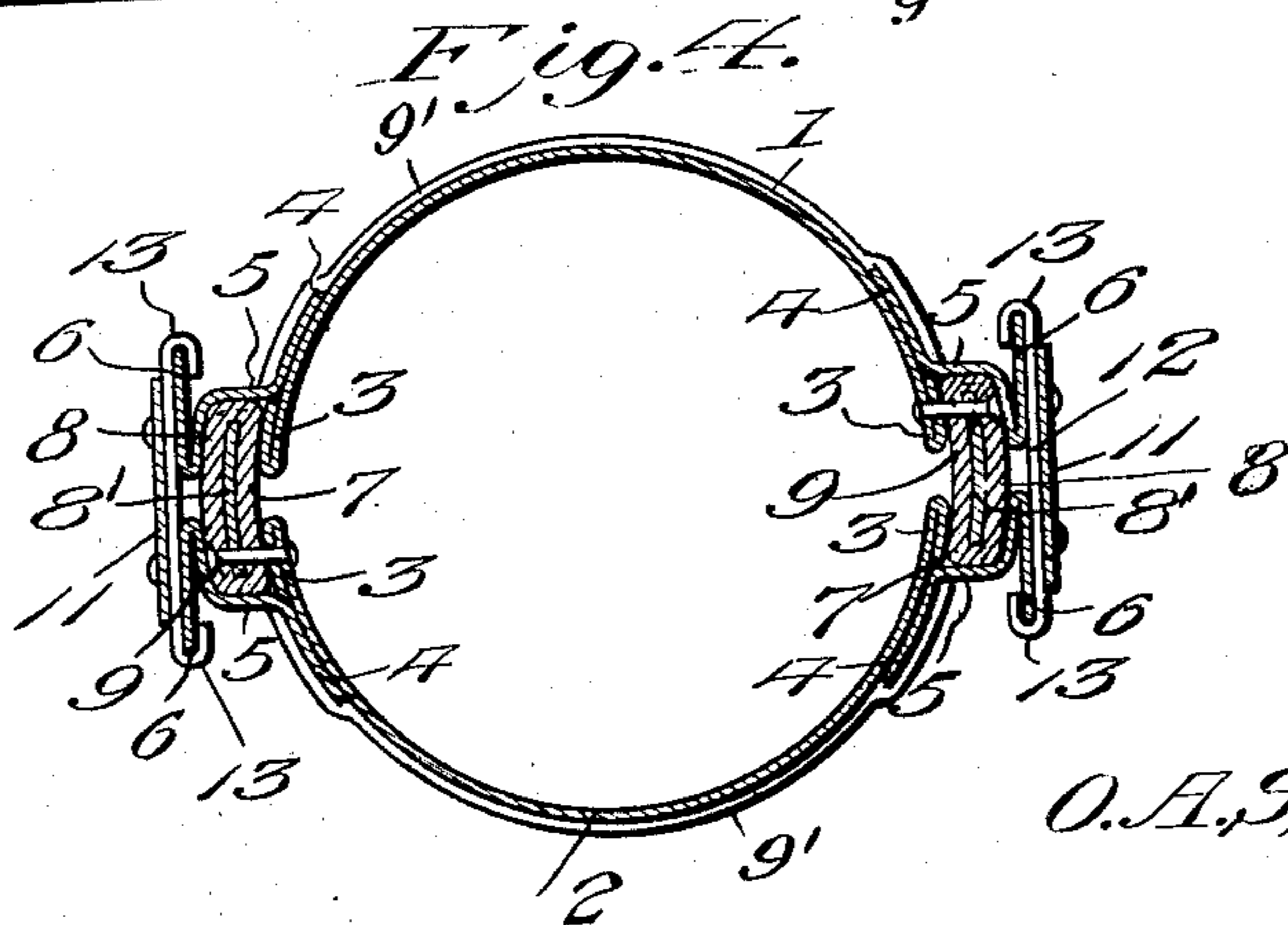
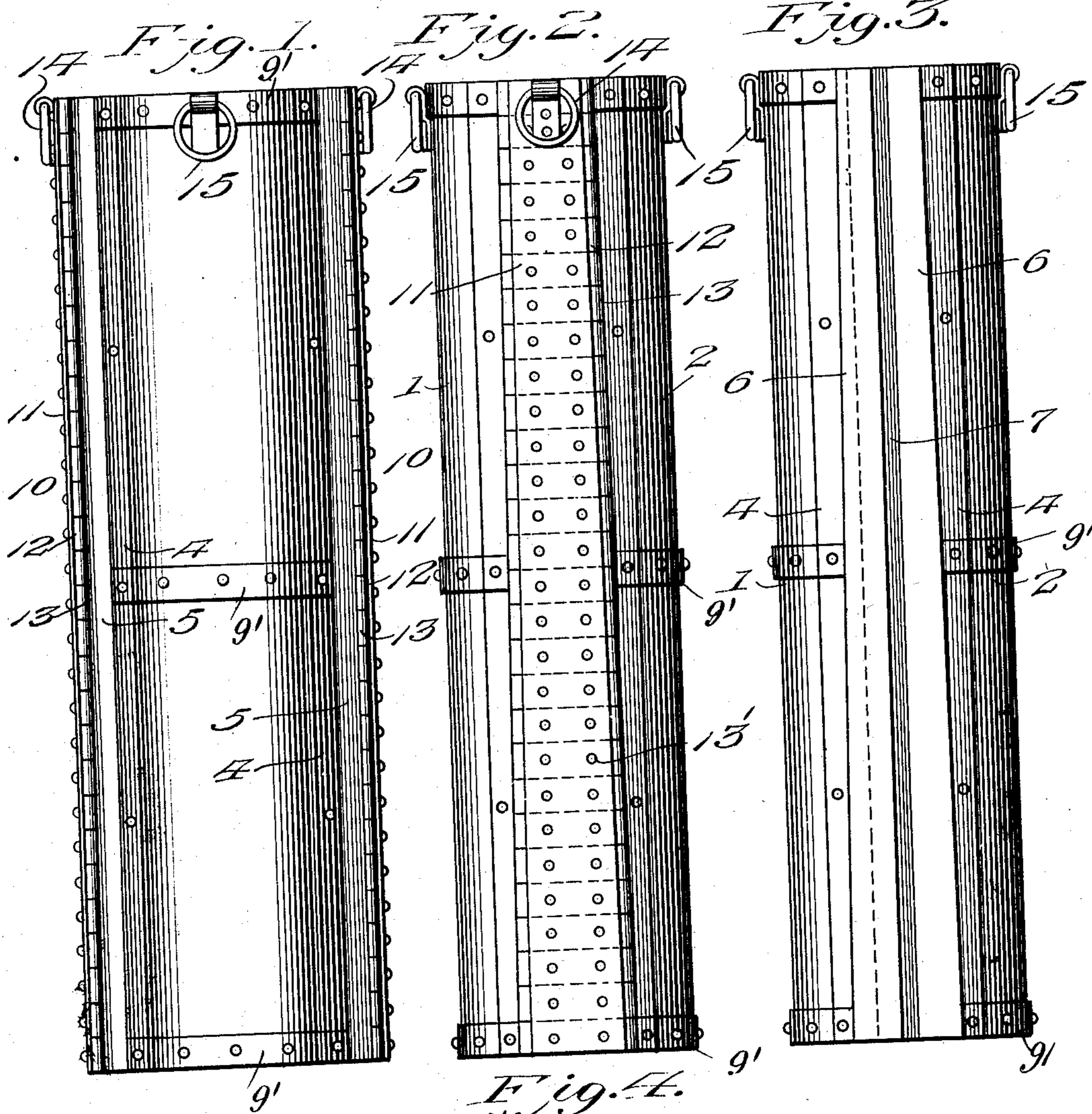
No. 859,530.

PATENTED JULY 9, 1907.

O. A. STEMPEL.  
MOLD.

APPLICATION FILED JUNE 23, 1906.

2 SHEETS—SHEET 1.



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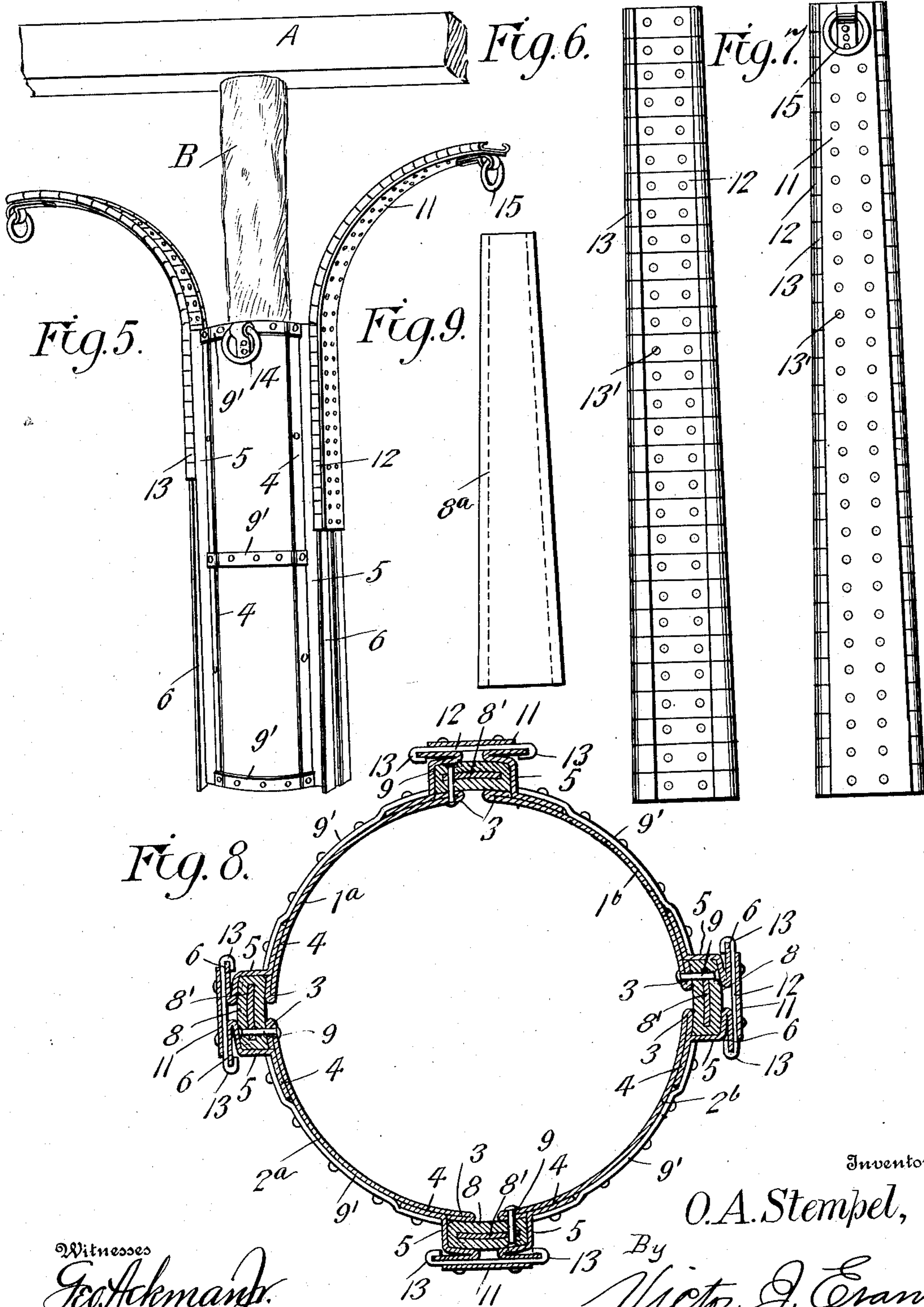
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# UNITED STATES PATENT OFFICE.

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## MOLD.

No. 859,530.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed June 23, 1906. Serial No. 323,102.

To all whom it may concern:

Be it known that I, OMAR A. STEMPEL, a citizen of the United States of America, residing at Clearwater, 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 improvements in molds of the type shown in my prior U. S. Patent No. 784,967, granted March 14, 1905, designed to be used in the construction of a protecting jacket or covering of concrete or other preferred material about piles, telegraph poles and the like to preserve the same from decay, penetration by insects, fire and other causes which lead to rapid deterioration and destruction of supports of this character. The molds are also adapted for use in forming concrete piles, piers, posts and articles of a similar nature.

The present invention has for its primary object to provide a sectional mold which may be varied in diameter to suit different contingencies of service, and which may be easily handled and shipped and quickly and conveniently assembled and disassembled.

Another object is to provide improved means for securing water-tight joints between the sections and fastening the sections firmly together in setting up the mold for use.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which,—

Figure 1 is a view in elevation of a mold embodying my invention. Fig. 2 is a similar view looking toward the mold at right angles from the elevation shown in Fig. 1. Fig. 3 is a view similar to Fig. 2 with the union or clamp removed. Fig. 4 is a horizontal section through the mold. Fig. 5 is a perspective view showing the mold arranged about a pile with the flexible unions in the positions they occupy in their application and removal. Fig. 6 is an inner elevation of one of the unions. Fig. 7 is an outer elevation of the same. Fig. 8 is a horizontal cross section through a mold embodying more than two separable sections. Fig. 8 is a view of a modified form of packing strip.

The mold is of cylindrical form and adapted to be placed around that portion of a pile or similar structure below water, the sectional construction of the mold permitting it to be readily placed in position and closed by fastening the sections thereof.

In practice, the mold may consist of two or more sections, two sections 1 and 2 of semi-cylindrical form being shown in Figs. 1 to 4, inclusive. The number of sections may be varied to adapt the mold to surround piles of different sizes and to be used in the formation

of solid piles, flers and other structures of concrete varying to a greater or less extent in diameter.

In Fig. 8 a mold embodying four sections, 1<sup>a</sup>, 1<sup>b</sup>, 2<sup>a</sup> and 2<sup>b</sup> is shown, and any number of such sections of proper partially-circular form may be used and assembled in the manner hereinafter described to produce a mold of the desired diameter. The sections used in conjunction with each other are similar in construction and of any desired length, and each has its longitudinal side edges folded outwardly to form reinforcing flanges 3. Metallic joint plates 4, extending the full length of the sections, are attached to each section adjacent the reinforcing flanges 3, and each joint plate is bent outwardly and inwardly to form a longitudinal groove or receiving space 5, and thence outwardly and laterally to provide a locking tongue or element 6. The body portions of the plates are preferably riveted to the mold sections and the intermediate bent portions thereof forming the grooves or recesses 5 have their outer walls disposed in parallel relation to the flanges 3. The grooves or receiving spaces 5 in the adjacent meeting edges of the mold sections are adapted to receive the edges of packing strips 8. These strips may be formed of rubber or other suitable elastic packing material, but are preferably constructed of wound or folded pieces of fabric saturated with a waterproof substance, such as pine tar. The strips extend across the joints or spaces between the meeting edges of the sections, and each strip is preferably provided with a central metallic plate or stay 8' to give the required strength and stiffness thereto. The edge of one strip is inserted and fastened within the receiving space in one of the sections, and is preferably fitted at its opposite end into the receiving space of the other section, this arrangement being reversed at the opposite sides of the mold, the section 1 being provided with one of the strips which is permanently fastened thereto, while the other strip is permanently fastened upon the section 2. Each strip is fastened in position by rows of rivets 9 extending through the same and the parallel inner and outer walls of the receiving portions 5. Transverse bracing strips 9' are riveted or otherwise fastened to the mold sections and overlap the plates 4 to increase the strength of the structure.

The mold sections are adapted to be held in assembled position by longitudinally slidable clamps or unions 10, each comprising an outer body plate 11 extending the full length thereof, and upon the inner side of which are arranged transverse strips 12 projecting at their ends beyond said body plates and bent to provide hooks 13 to engage the tongues 6. The strips 12 are fastened to the plate 11 by rivets 13', and by their construction and mode of application permit the plate 11, which is sufficiently flexible, to bend freely

n a plane at right angles to the strips, thus forming in effect, without the use of hinges, a jointed clamp which may be bent outwardly to facilitate its insertion and removal and to adapt the upper end thereof to clear low piers or docks in the use of the mold upon one of the piles or supports thereof. Each clamp or union is provided at its upper end with a handle 14 for convenience in raising, lowering and manipulating the same, and, in order to secure a tight connection between the mold sections, the flanges 6 and hooked edges 13, which form tongue and groove connections between the mold sections and clamps, are tapered longitudinally of the mold, so that in the action of applying the clamps the mold sections will be drawn together by a wedging action. The taper of the interlocking parts increases gradually from the upper to the lower ends of the mold sections and clamps, thus allowing the lower ends of the clamps to be conveniently applied to the upper portions of the tongues 6 and the clamps to be thereby freely slid down into locking position and to gradually draw the mold sections together as they are forced downward.

The mold sections may be constructed of sheet metal or any other suitable material and are provided at their upper ends with handles 15 to enable them to be supported and adjusted by ropes or other supporting devices.

In employing the mold for forming a protective covering about a submerged pile or similar support, the mold sections are lowered into the water on opposite sides of the pile and then brought into operative position, after which the clamps 10 are applied to hold the mold sections in position about the pile. The lower end of the mold may then be forced into the ground or bed of the stream in any preferred manner, and centered about the pile, thus forming a chamber around the pile which may be freed from water by pumping, the water-tight joints preventing further access of water thereto. After the mold has thus been applied in position it is filled with a concrete mixture of a suitable character and the mold allowed to remain in position until such mixture has set or hardened. The mold may then be disconnected by drawing the clamps 10 upwardly to release them from the sections 1 and 2, after which the latter may be drawn out of the water. As a result the pile will be provided with an impervious coating of cement which will protect the same from rust or from the ravages of teredos, water bugs and other destructive insects, and from decay from natural causes. The mold may also be employed in an obvious manner for constructing solid piles, piers and other elements of this nature of concrete or other plastic materials.

By constructing the mold in the manner described the sections thereof may be conveniently fitted into one another or nested for storage or shipment, and by the described construction of the clamp ample flexibility of the same is secured to enable them to be fitted in position upon mold sections arranged about one of the supporting piles or a low wharf or pier without the necessity of employing hinged joints.

The mold sections may be made of any desired length, and by making the sections separable the mold may be more conveniently applied for use and removed, and the sectional construction also enables the

mold to be placed around any pile irrespective of its position relative to an overhead covering, wharf or pier which would prevent a permanently closed tube from being placed about the pile.

An important feature of my invention resides in the peculiar construction of the joint connections or means for securing the mold sections together, it being noted that while the body portions or plates of the unions are uniform in width between the edges of the hooks 13, the latter, as well as the tongues 6 of the mold sections, taper gradually and uniformly, whereby in the operation of applying the unions the increased width of the hooks at the lower ends thereof allows the unions to be freely fitted in position, while in the operation of disconnecting the unions such construction permits the unions, after they have been drawn upward to a slight extent to decrease the friction between them and the tongues, to be disengaged with ease from the tongues to disconnect the mold sections. Furthermore, the mode of constructing the unions employed in the present instance insures freedom from binding or hanging, such as is experienced in the construction of the unions of hinged sections, and a much securer water-tight connection is afforded. The peculiar construction of the packing 8 also provides an absolutely water-tight joint without the use of complicated fastenings and without the necessity of bringing the meeting edges of the mold sections into direct contact, as the pressure of any water which may creep past the unions and enter the packing space will crowd the packing against the flanges 3, thus preventing the entrance of the water to the mold.

In Fig. 5 I have shown the mold arranged about one of the piles B of a wharf, pier or similar structure C, from which it will be observed that the flexibility of the unions permits them to be readily applied to and removed from the mold sections by a bending action below the wharf and without interference therefrom. In the operation of assembling the mold sections, they may be lowered into the water by ropes or other supports applied to the rings 15 and held suspended above the bottom or bed of the river or other body of water while the unions are being applied, after which the mold is lowered, forced down into the bed and freed from water in the manner before described. The construction of the joint fastenings facilitates the work of forming the mold, as it is simply necessary to insert the packing strips into the recesses at the upper ends of the mold sections and to apply the unions without the necessity of fitting the strips in position throughout the length of the mold sections, as the downward movement of the unions will bring the meeting edges of the mold sections together and accurately force the packing strips into their receiving recesses.

If desired, the edges of the tongues 6 may be straight instead of tapered, in which event a longitudinally tapered packing strip 8<sup>a</sup>, shown in Fig. 9, is used to secure a close joint between the sections when drawn together by the tapered locking members on the union.

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

1. A mold comprising a plurality of sections provided at their meeting edges with receiving spaces, packing strips held in said spaces and crossing the joints between the meeting edges of the sections, each strip being provided

with a stay embedded therein, and unions connecting the meeting edges of the sections.

2. A mold comprising a plurality of sections provided at their meeting edges with receiving spaces, packing strips, each having one edge fastened within a receiving space in one section and projecting therefrom so as to extend into the receiving space of the other section, and unions uniting the meeting edges of the sections.

3. A mold of cylindrical form comprising a plurality of partially circular sections provided with receiving spaces and locking tongues extending longitudinally along their meeting edges, flexible sliding unions engaging said tongues to hold the sections assembled, and elastic packing strips crossing the joints between the sections between the meeting edges of the latter and the unions, each strip being permanently secured within a receiving space of one section and projecting into the aligned receiving space of an adjoining section and being held laterally and transversely in compressed condition by the unions.

4. A mold comprising a plurality of sections provided at their meeting edges with receiving spaces and laterally extending tongues beyond said spaces, packing strips fitted in said spaces, each strip being secured in one space and projecting removably into the other space, and sliding means engaging said tongues and holding the sections and packings in assembled relation.

5. A mold comprising a plurality of sections provided along the meeting edges thereof with portions bent outwardly and inwardly to form receiving recesses and thence rebent outwardly to provide locking tongues lying transversely beyond the plane of said recesses, packing strips, each secured within a recess of one section and projecting into the recess of the other section, said strips being arranged to cross the joints between the sections and to hold the meeting edges thereof separated to permit compression of said strips, and flexible sliding unions engaging the locking tongues and adapted to draw the meeting edges together to compress said strips, said unions being arranged to close the spaces outside the strips and to cover the outer exposed surface of the latter.

6. A mold comprising a plurality of separable sections, each section being provided at its edges with receiving spaces and locking elements, packing strips seated in said receiving recesses, the strips being respectively permanently fastened to the different sections and removably projecting into the receiving spaces of the opposing sections, and sliding means engaging the locking elements to hold the meeting edges of the sections united.

7. A mold comprising a plurality of separable sections, each of said sections being provided at its meeting edges with portions bent outwardly and laterally to form a longitudinal receiving recess and rebent laterally in the reverse direction to provide a locking tongue located outside of the plane of said recess, each section having one of its recesses unoccupied and its other recess provided with a packing strip secured at one of its edges therein, the free edges of the packing strips projecting into the normally unoccupied recesses of the sections, said strips being arranged to hold the meeting edges of the sections spaced apart and crossing and closing the intervening joints, and flexible sliding unions engaging the locking tongues and crossing the intervening space to supplement the action of the packing strips in closing the joints and to cover the outer exposed surfaces of said strips.

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

Witnesses:

C. C. HINES,  
AIMEE BROWN.

OMAR A. STEMPEL.