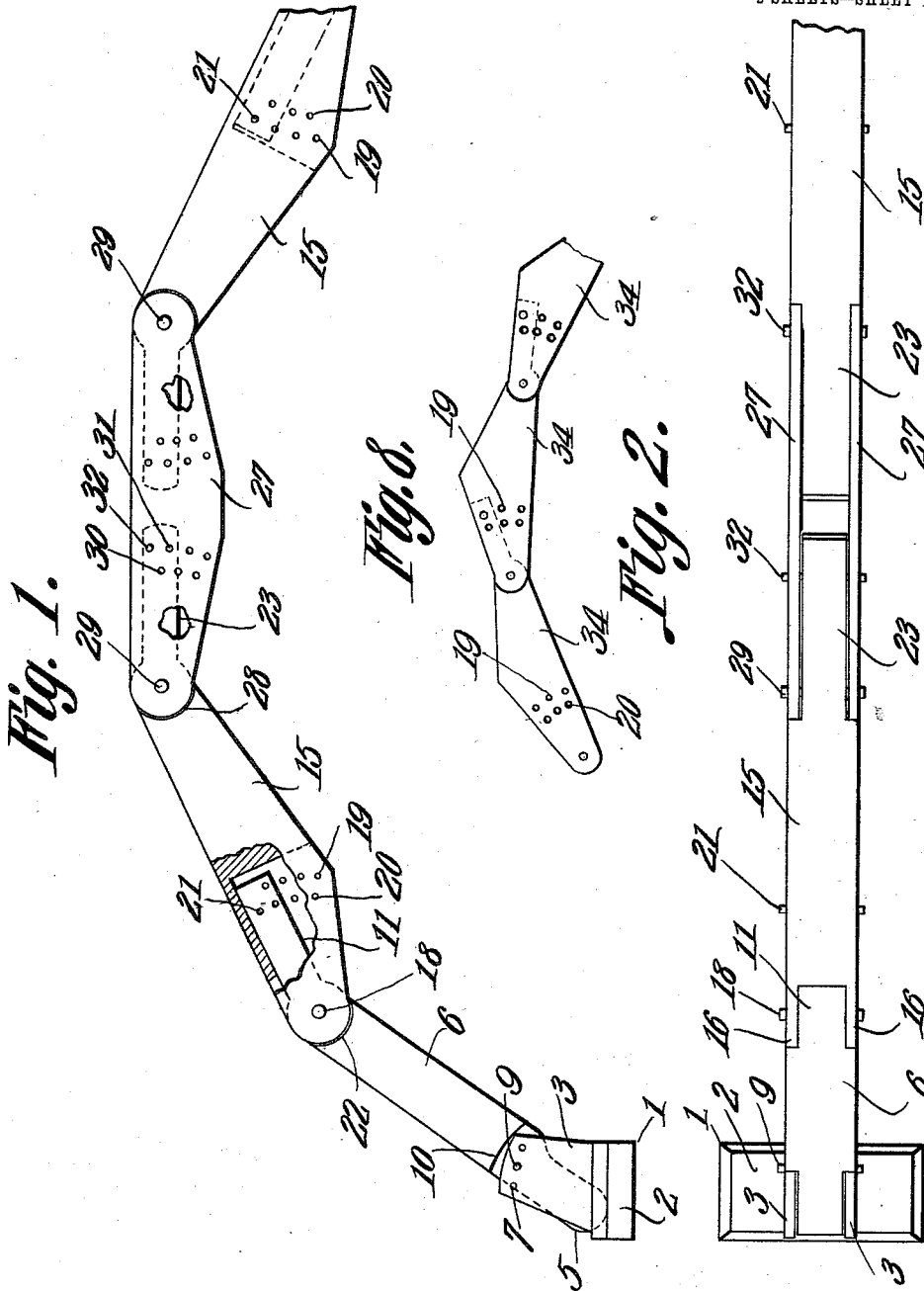


1,019,314.

H. H. FRICK.
ARCH CENTERING.
APPLICATION FILED SEPT. 14, 1910.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.



Witnesses
Frank B. Woodw.
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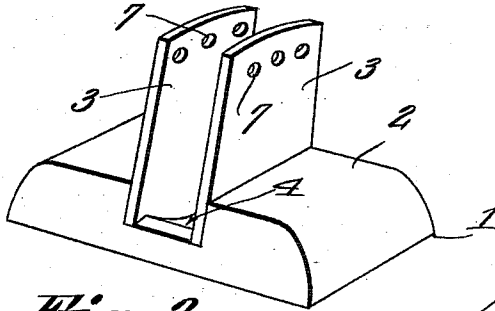


Fig. 3.

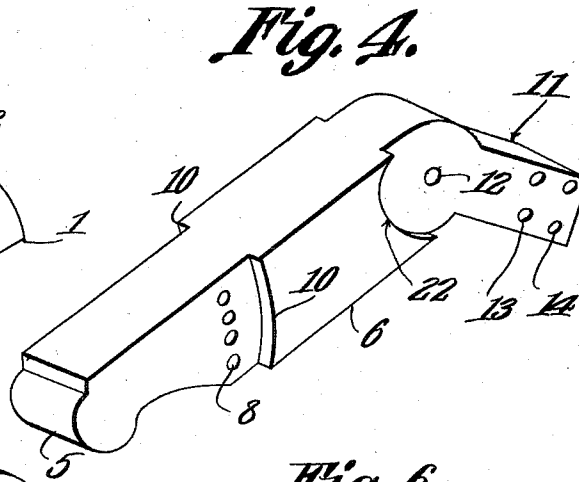


Fig. 4.

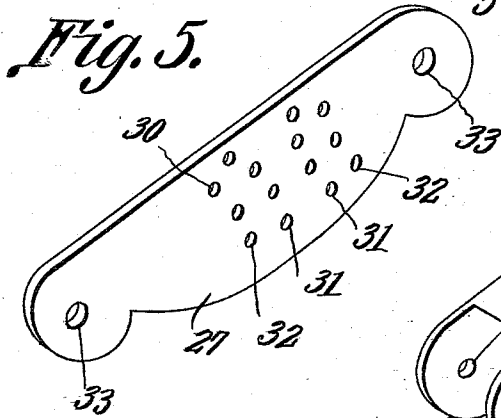


Fig. 5.

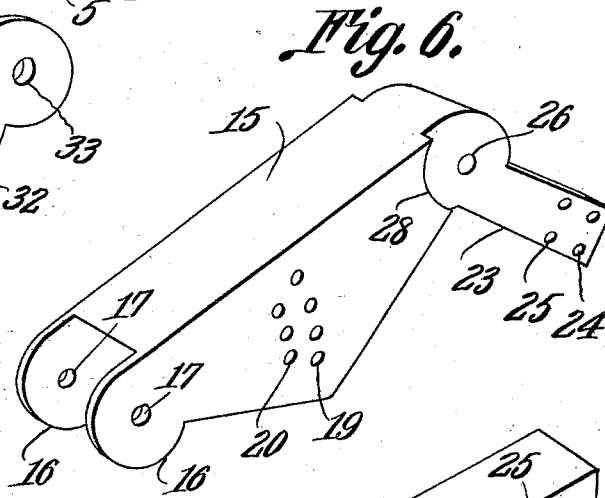
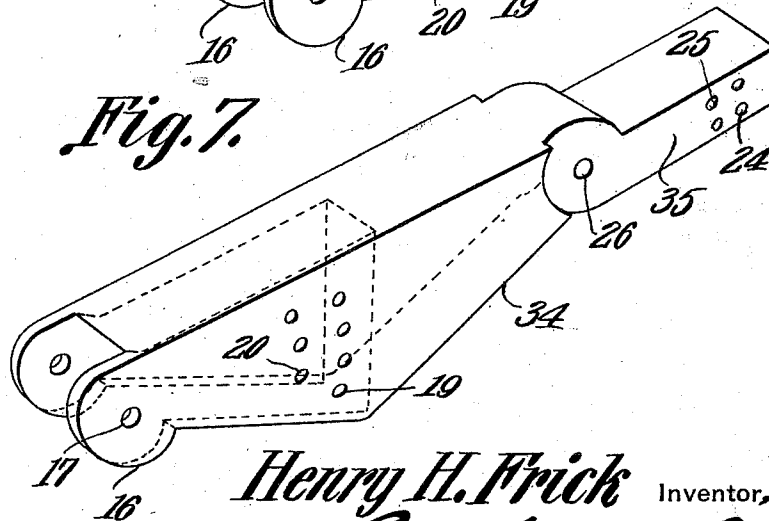


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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ARCH-CENTERING.

1,019,314.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed September 14, 1910. Serial No. 582,041.

To all whom it may concern:

Be it known that I, HENRY H. FRICK, a citizen of the United States, residing at Fricks, in the county of Bucks and State of Pennsylvania, have invented a new and useful Arch-Centering, of which the following is a specification.

It is the object of this invention to provide a support for masonry and concrete arches, during the construction of the same, the support being so constituted that its contour may be altered, at will, thereby to permit a single arch support to be employed in the construction of arches of different contours.

Another object of the invention is to provide a novel means for assembling the constituent elements of the support, and to provide novel means for connecting the parts of the support to alter the contour of the support.

In the drawings, Figure 1 is a fragmental side elevation; Fig. 2 is a fragmental top plan; Fig. 3 is a perspective of the skewback; Fig. 4 is a perspective of one of the lowermost voussoirs; Fig. 5 is a perspective of one of the keystone plates; Fig. 6 is a perspective of one of the upper voussoirs; Fig. 7 is a perspective showing a modified form of upper voussoirs; and Fig. 8 is a side elevation showing a modified form of assembling the parts.

In the drawings, the skewbacks are denoted generally by the numeral 1. These skewbacks comprise a base 2 and spaced, upstanding wings 3, formed integrally with the base 2 of the skewback. In the base 2, between the wings 3, is a concaved seat 4, adapted to receive the rounded lower end 5 of the lowermost voussoir 6. The thrust of the lower voussoir 6 against the skewback 1, is received in the seat 4 of the skewback. In the lower voussoir 6 are a plurality of openings 8, duplicated transversely of the voussoir, and each of these openings 8 is adapted to be brought into alinement, successively, with each of a series of openings 7 in the wings 3 of the skewback. When one of the openings 7 in the wings 3 is alined with one of the openings 8 in the lower voussoir 6, a securing pin 9 may be thrust into the openings which are thus alined. From the foregoing it will be seen that the angle between the lower voussoir 6 and the base 2 of the skewback 1 may be altered, the relative positions between the lower voussoir 6 and the skewback being maintained by means of the

securing pin 9. The lower voussoir 6 is shouldered, as shown at 10, to receive the ends of the wings 3 of the skewback. The opposite end of the lower voussoir 6, denoted by the numeral 11, is inclined at an angle to the body of the voussoir. This construction is most clearly seen in Fig. 4. Intermediate the ends of the lower voussoir 6 is an opening 12. Adjacent the extremity of the portion 11 of the lower voussoir 6 are two series of openings, duplicated transversely of the voussoir, and denoted respectively by the numerals 14 and 13.

The upper voussoir is denoted by the numeral 15, the voussoir 15 being chambered in its lower face, and provided at one end with spaced wings 16, between which the end 11 of the lower voussoir 6 may be inserted. In the wings 16 there are openings 17 adapted to be alined with the opening 12 in the lower voussoir 6. Through the openings 12 and 17, a securing pin 18 may be inserted, to provide a pivotal union between the voussoirs 6 and 15. The voussoir 6 is, as denoted by the numeral 22, shouldered to receive the ends of the wings 16 of the voussoir 15. In the wings 16 there are openings 19 and 20, the openings 19 and 20 being duplicated transversely of the voussoir. Each of the openings 19 is adapted to be alined with each of the openings 14 in the end 11 of the lower voussoir 6. Each of the openings 20 is adapted to be alined with each opening 13. Through any of the openings thus alined, a securing pin 21 may be thrust. By mounting this securing pin 21 in successive openings, the angle between the upper voussoir 15 and the lower voussoir 6 may be changed. The end 23 of the upper voussoir 15 is inclined at an angle to the body of the voussoir, as seen clearly in Fig. 6. In this end 23 there are openings 24 and 25, these openings 24 and 25 being duplicated transversely of the voussoir. In the intermediate portion of the upper voussoir 15 there is an opening 26.

The keystone of the structure comprises a pair of plates, one of which is shown in Fig. 5. The plates, which are denoted by the numeral 27, are adapted to be applied to opposite sides of the ends 23 of the upper voussoir 15, the upper voussoir 15 being shouldered, as shown at 28 to receive the ends of the keystone plates 27. In the ends of the keystone plates there are openings 33. These openings 33 are adapted to be

brought into alinement with the openings 26 in the upper voussoirs 15. Through the openings 26 and 33, securing pins 29 may be inserted, so that the upper voussoirs 15 are pivotally connected to the keystone, the ends 23 of the voussoirs 15 extending toward each other between the keystone plates 27. In the keystone plates 27 there are a plurality of openings 31 and 32. Each of the openings 32 is adapted to be brought into alinement with each of the openings 25 in the ends 23 of the voussoirs 15; and each of the openings 31 is adapted to be brought successively into alinement with the openings 24. Through the openings which are thus alined, retaining pins 32 may be inserted, and thus the angles between the upper voussoirs 15 and the keystone may be adjusted.

If desired, the upper voussoirs 15 may be modified as denoted by the numeral 34 in Fig. 7. In such instance, referring to Fig. 7, the ends 35 of the voussoirs may be disposed in alinement with the body of the voussoir. By substituting the modified voussoir 34 for the voussoir 15, the contour of the supporting structure may be changed, as shown in Fig. 8, to serve as a hoop for encircling silos, water tanks and other cylindrical structures which are usually built upright.

It will be seen that by successively mounting the securing pins in the several openings, the contour of the structure may be changed at will, this contour being susceptible of further alternation, by the substitution of the voussoir 34 for the voussoir 15.

The device is so constructed that a single structure may be employed for fashioning arches of different contours, and permitting a single structure to be employed in arches of different spans, and of different rises.

Having thus described the invention what is claimed is:—

1. An arch support comprising overlapped members, one of which is pivoted intermediate its ends to the next adjoining member; means for maintaining the overlapped end of the first named member in predetermined positions transversely of the second named member.

2. An arch support comprising overlapped members, one of which is pivoted

intermediate its ends to the next adjoining member; the over-lapped end of the first named member and the second named member being provided with alining openings, the openings in one of said members being duplicated transversely of said member for successive alinement with the openings in the other member; and a securing device insertible into the openings.

3. An arch support consisting of a member provided with spaced wings; a member pivoted intermediate its ends between the wings; there being alined openings in the last member and in the wings, duplicated transversely of the support; and a securing device insertible into the openings.

4. An arch support consisting of spaced members; a keystone terminally pivoted to the intermediate portions of said members; and means for securing the adjacent ends of the members to the keystone in successive positions transversely of the keystone.

5. An arch support consisting of spaced members; a keystone consisting of plates applied to the opposite sides of said members and pivotally connected with the intermediate portions of said members; there being openings in the adjacent ends of said members, and in the keystone plates, certain of which openings are duplicated, transversely of the keystone; and securing devices insertible into the openings.

6. In an arch support, a voussoir; a skewback against which the voussoir terminally abuts, the skewback having spaced wings between which the voussoir is located; and means for securing the voussoir to the skewback, in successive positions, transversely of the skewback.

7. In an arch support, a skewback having spaced wings, and a concave seat located between the wings; a voussoir having a rounded end to rest in the seat; there being alined openings in the voussoir and the wings, certain of which openings are duplicated transversely of the support; and a securing device insertible into the openings.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HENRY H. FRICK.

Witnesses:

ROBERT S. FRICK,
W. S. BERGEY.