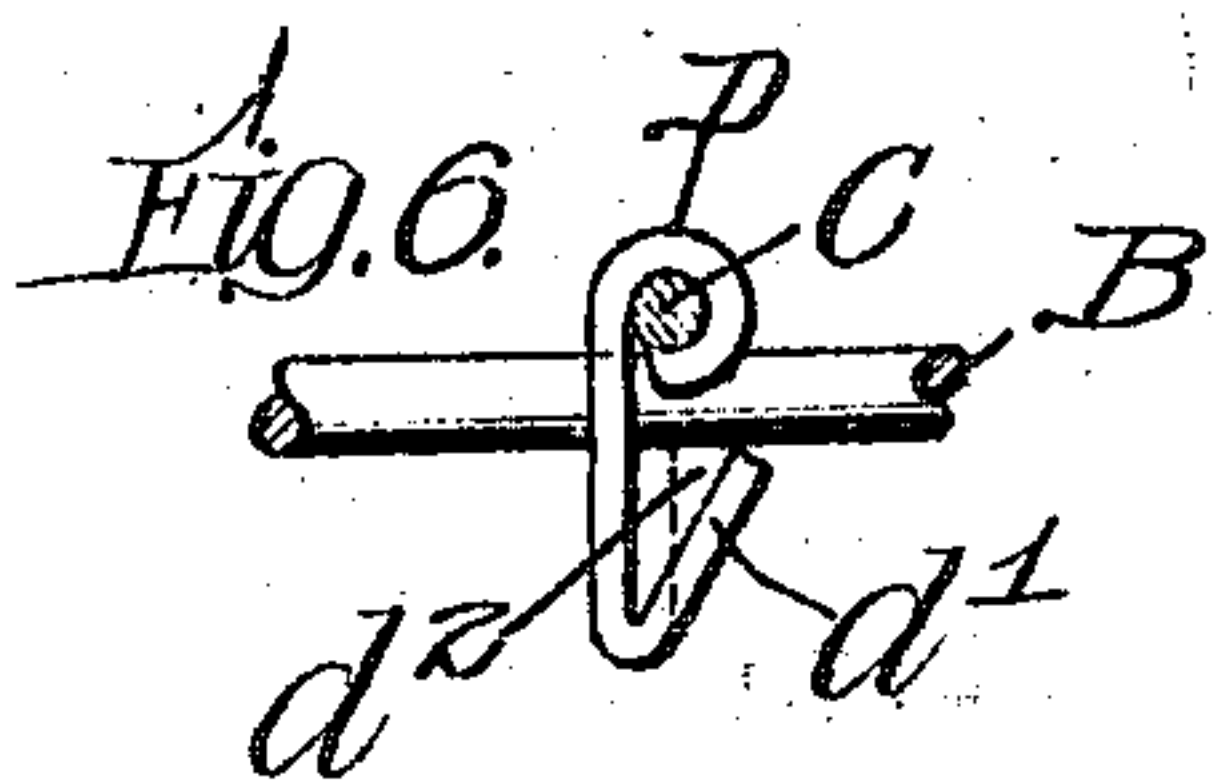
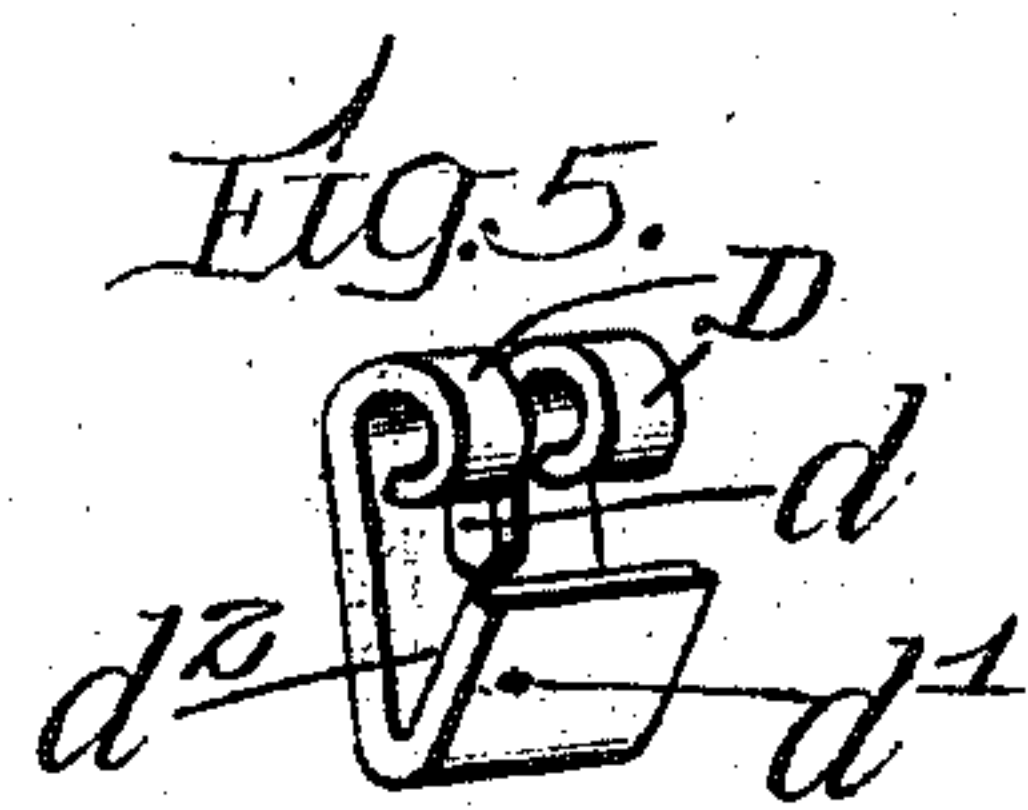
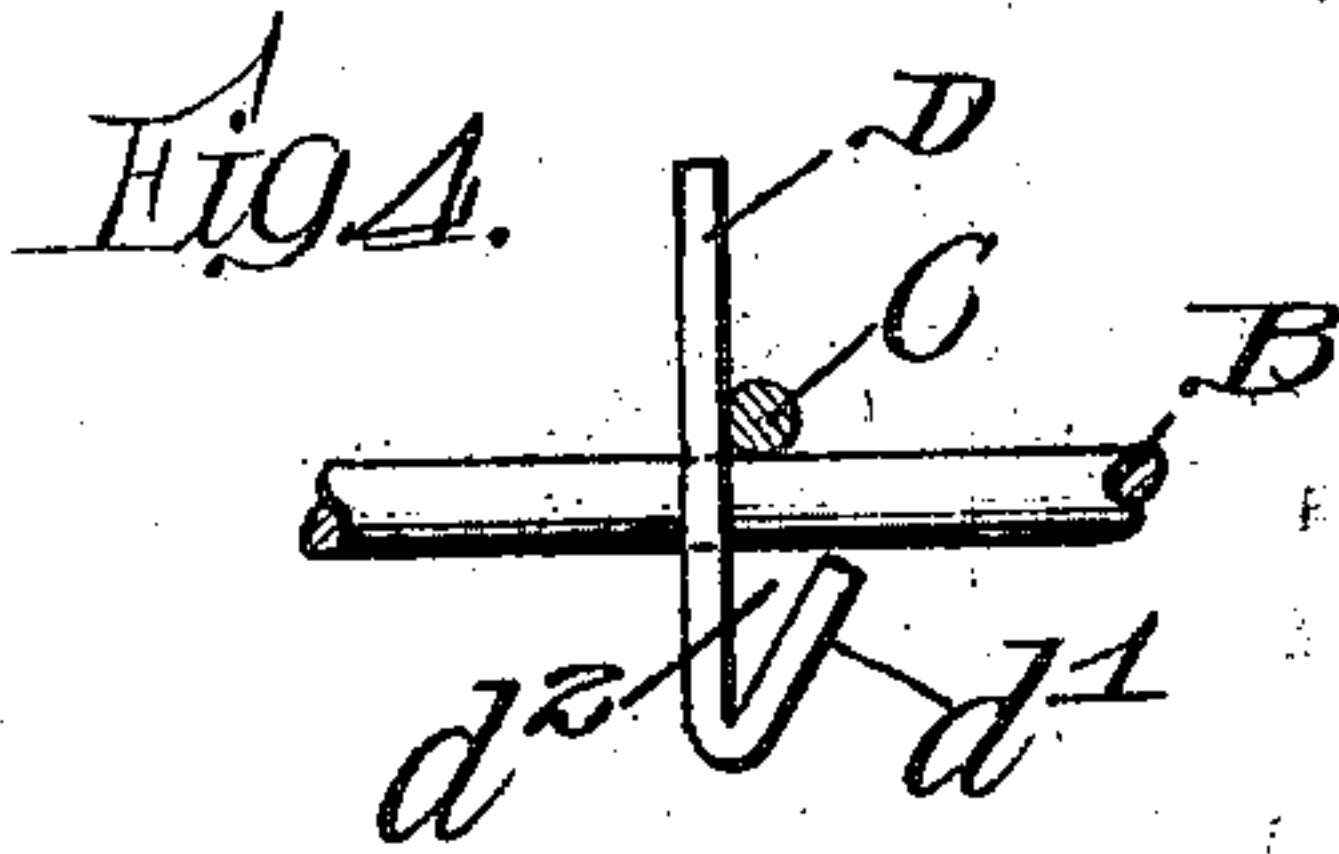
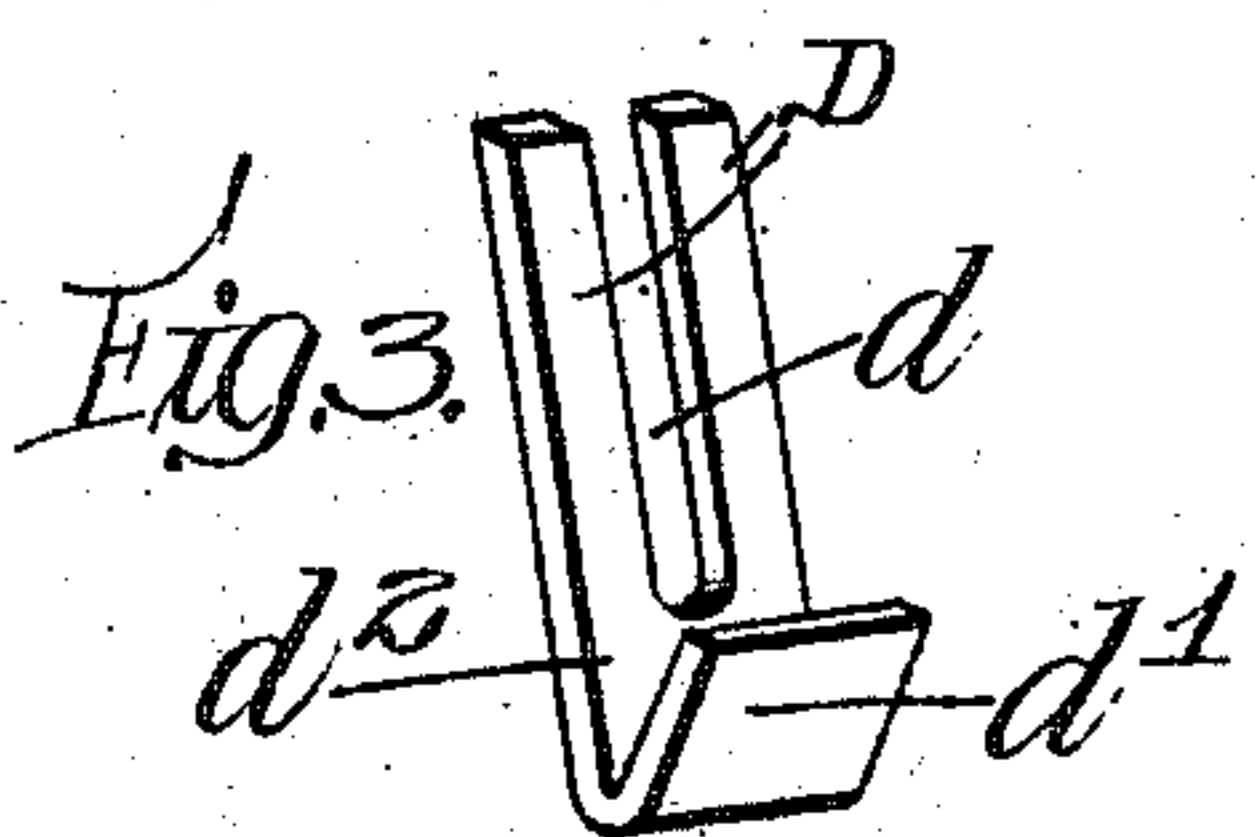
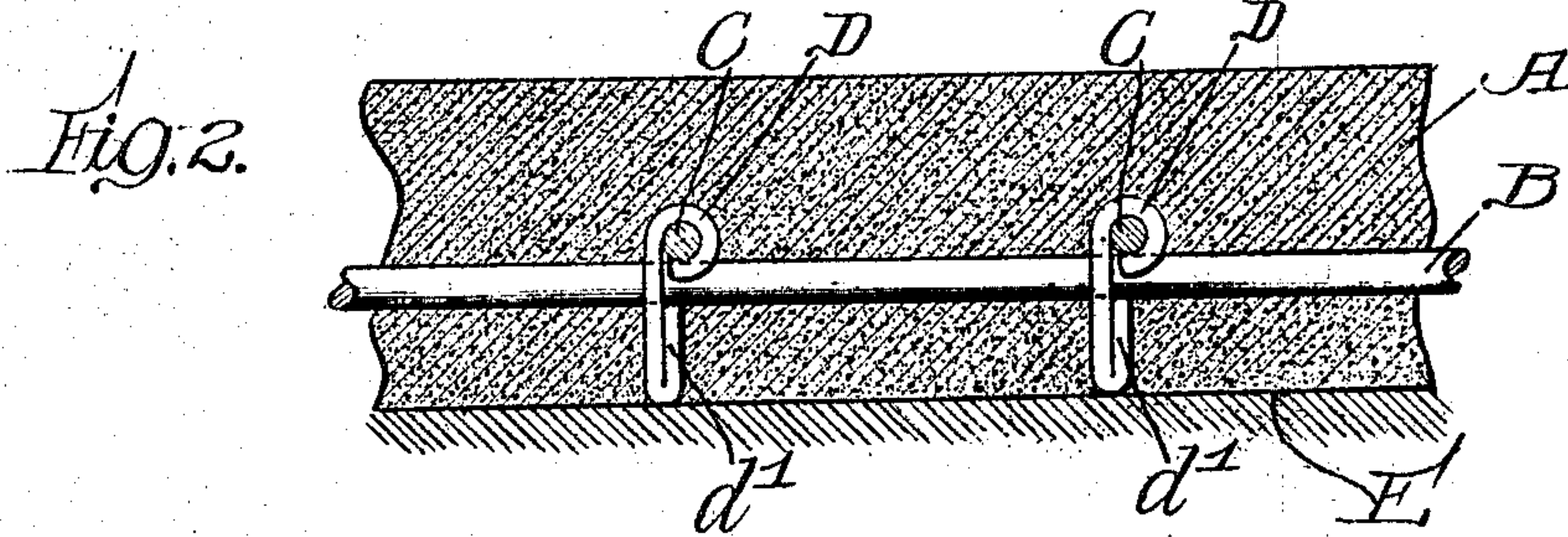
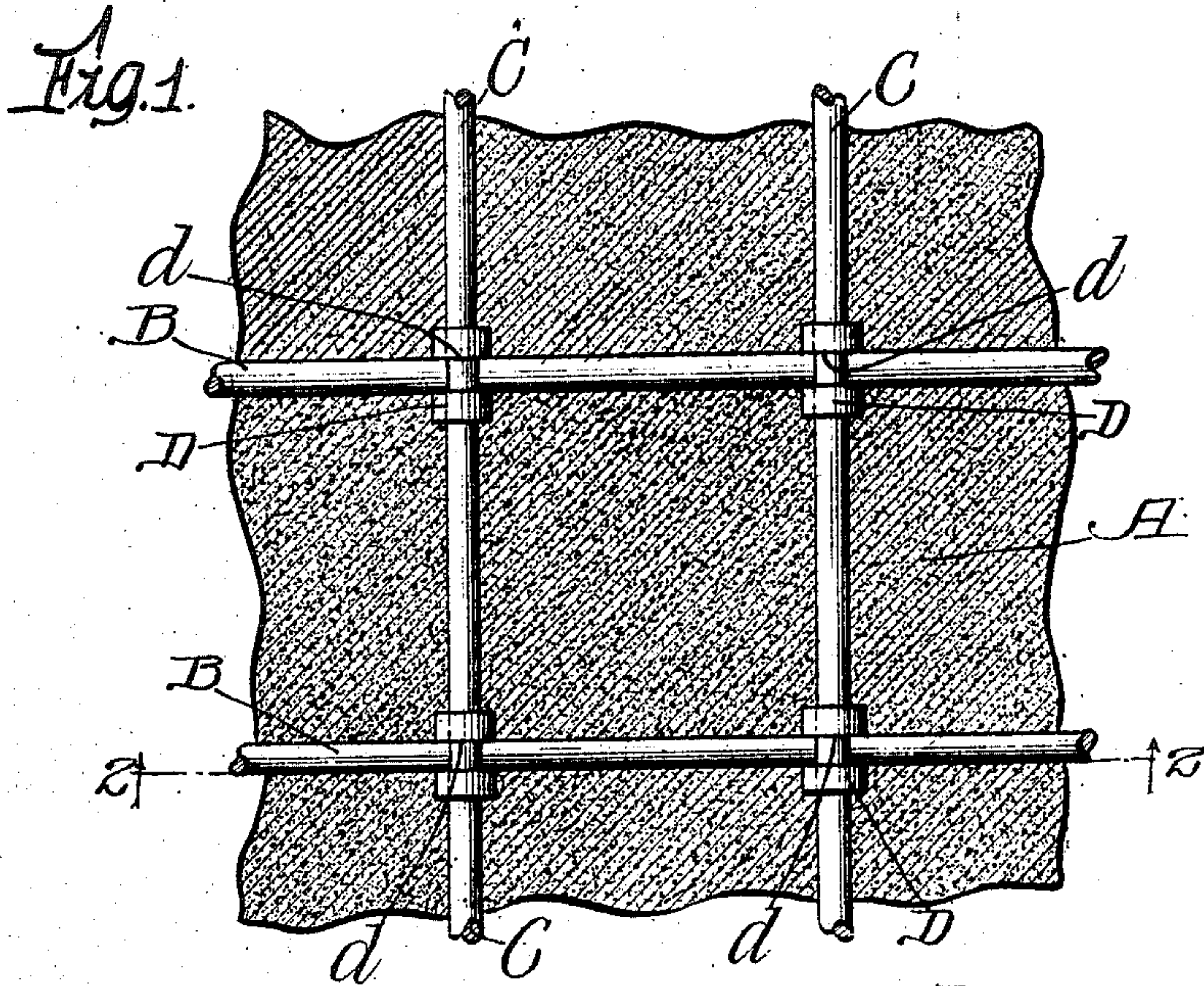


R. W. DULL.
CONCRETE REINFORCEMENT.
APPLICATION FILED DEC. 20, 1909

985,734.

Patented Feb. 28, 1911.



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UNITED STATES PATENT OFFICE.

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CONCRETE REINFORCEMENT.

985,734.

Specification of Letters Patent.

Patented Feb. 28, 1911.

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To all whom it may concern:

Be it known that I, RAYMOND W. DULL, a citizen of the United States of America, and resident of Aurora, Kane county, Illinois, have invented a certain new and useful Improvement in Concrete Reinforcements, of which the following is a specification.

My invention relates to the reinforcement of concrete by means of rods arranged in suitably spaced and crossed relation. Prior to my invention, various devices have been proposed for fastening the rods together where they cross. So far, however, it is my understanding that none of these devices have proved entirely satisfactory.

The object of my invention is, therefore, the provision of improved means for securing the rods together at the points where they cross, whereby the concrete is more efficiently reinforced, and whereby the said rods are more firmly held in place than heretofore, said means consisting of a strip of metal bifurcated at one end and flexible at both ends, as will be more fully explained.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a plan of a concrete reinforcement embodying the principles of my invention, the concrete being shown in horizontal section. Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a perspective of a sheet metal device for clamping the reinforcing rods together, showing the same as it appears before applied to the said rods, which device embodies the principles of my invention. Fig. 4 is a side elevation of the device shown in Fig. 3, showing the same in position to be applied to the rods. Fig. 5 is a perspective of the said device, showing the shape of the same when bent upon the rod. Fig. 6 is a view similar to Fig. 4, but shows the upper end of the device bent around the upper rod.

As thus illustrated, the concrete A is reinforced by means of rods B and C, the latter being arranged crosswise of the former. These rods may be made of metal or any suitable material, and are arranged in suitably crossed and spaced relation. The problem is to secure these rods together at the points where they cross each other.

Fig. 3 is a perspective of a sheet metal fastening device for securing the rods together where they cross. This device comprises an upper end which is composed of

the prongs D, there being a slot d between them, and a lower end portion d^1 which is bent upwardly and back, but not to an extent to lie flatwise upon the body portion d^2 . In use, the rod B is received by the slot d , so that the prongs D extend above the rod C, in the manner shown in Fig. 4. Then the prongs D are bent down and around the rod C, as shown in Fig. 6. During this time it will be seen that the portions d^1 and d^2 serve to support the rod B a suitable distance above the surface E upon which the concrete is to be molded. After the portions D have been bent into position, as shown in Fig. 6, then the portion d^1 is pressed against the portion d^2 , in the manner shown in Fig. 2—that is to say, the portions d^1 and d^2 are pinched together. The portion d^1 is a little longer than the portion d^2 , whereby the pinching together of these two portions, in the manner shown in dotted lines in Fig. 6, serves to draw the rod C into more intimate engagement with the rod B, thus binding the two more firmly together. In other words, the portion d^1 , when bent upon the portion d^2 , acts as a sort of wedge to crowd the rod B upward against the rod C, in the manner shown in Fig. 2. The clamping action thus secured is effective, because even before the concrete is in place, the portion d^1 has no tendency to spring away from the portion d^2 , owing to the tight wedging action explained. The lower rod B rests upon the upper end of the portion d^1 , and the weight of the rods does not tend to relax the clamping action. Thus the rods are clamped very tightly in place where they cross each other, and are by the same means supported a suitable distance above the bottom of the concrete.

My invention can be used in two ways: The rods can be assembled where the concrete is to be laid, and the fastening devices applied at that time; or the entire metallic fabric can be constructed in the factory where suitable machinery can be used for bending the said fastening devices.

What I claim as my invention is:

1. A concrete reinforcement comprising rods arranged in spaced and crossed relation, and clamping devices applied to the rods where they cross each other, each clamping device consisting of a body of sheet metal disposed in a plane at right angles to the lower rod, to support the latter a distance above the bottom of the concrete, said sheet

metal being bifurcated at one end to provide prongs extending upwardly at each side of said lower rod, whereby the clamping device may be applied directly to the intersection of the rods, which prongs have a seat for the lower rod between them and are bent downwardly and curled around the upper rod at opposite sides of the lower rod, and a portion which is bent with its upper end against the lower rod, to crowd the lower rod upwardly against the upper rod, said last-mentioned portion being disposed in a plane at right angles to the lower rod, but in vertical alinement with the upper rod, and with its lower end integral with the lower end of the body, substantially as described.

2. A device for clamping rods together and for supporting the same in an elevated position, consisting of a body having a pair of flexible prongs at one end, adapted to be curled over one rod at each side of the other rod, said prongs providing a slot which is open at one end to receive the other rod, and a flexible wedging portion at the other end adapted to be bent with its end against said other rod, toward the said prongs, to crowd the two rods together, which wedging portion and open end of the slot are at opposite ends of said device.

3. In a concrete reinforcement, rods which are disposed in crossed relation, and a sheet metal fastener for holding the rods together at the point of intersection, said fastener having two prongs bent over one rod, which

prongs are spaced apart to form a slot between them, and a wedging portion bent toward the said prongs to bear upon the second rod, to wedge the rods together, said prongs being open between their ends, which opening is only as wide as the diameter of the second rod, the ends of the prongs being disposed between the first rod and the end of said wedging portion, the second rod being below the first rod and seated in the slot between said prongs.

4. In a concrete reinforcement, rods which are disposed in crossed relation, and a sheet metal fastener for holding the rods together at the point of intersection, said fastener having two prongs bent over one rod, which prongs are spaced apart to form a slot between them, and a wedging portion bent toward the said prongs to bear upon the second rod, the ends of the prongs being disposed between the first rod and the end of said wedging portion, said prongs and wedging portion being at the same side of said fastener, so that the rod engaged by said prongs is in line with said wedging portion, said prongs being open between their ends, which opening is just wide enough to admit the second rod.

Signed by me at Chicago, Ills., this 16th day of December, 1909.

RAYMOND W. DULL.

Witnesses:

W. M. B. DURAND,

J. NORBY.