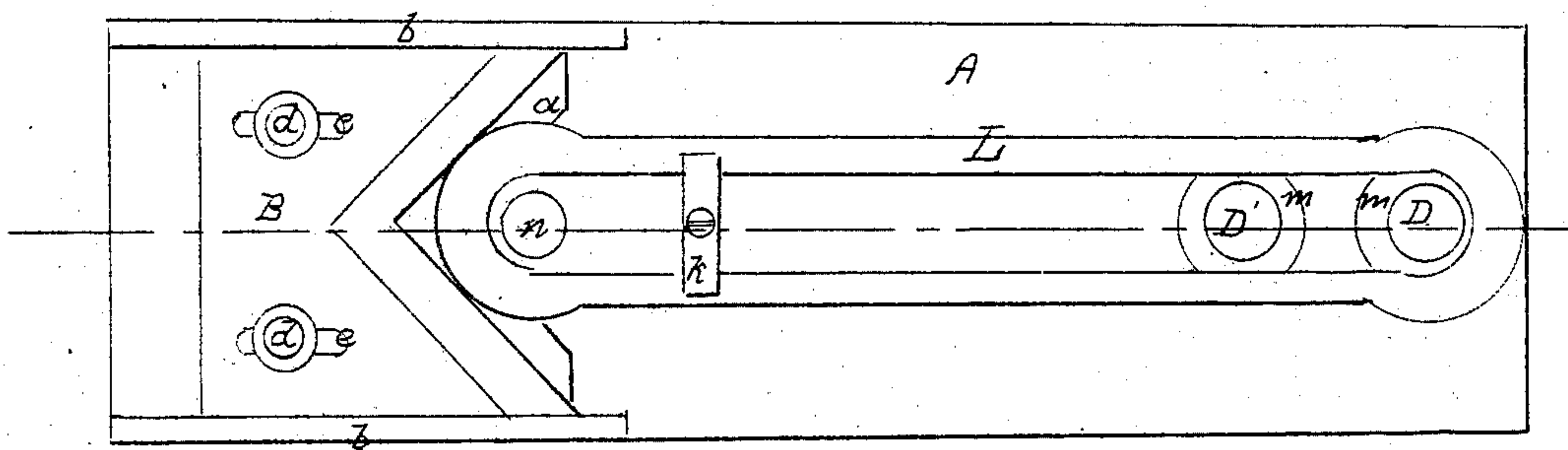


Ch. Kellogg, Plate for Boring Links or Eyes

74376

Fig. 1



PATENTED

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Fig. 2

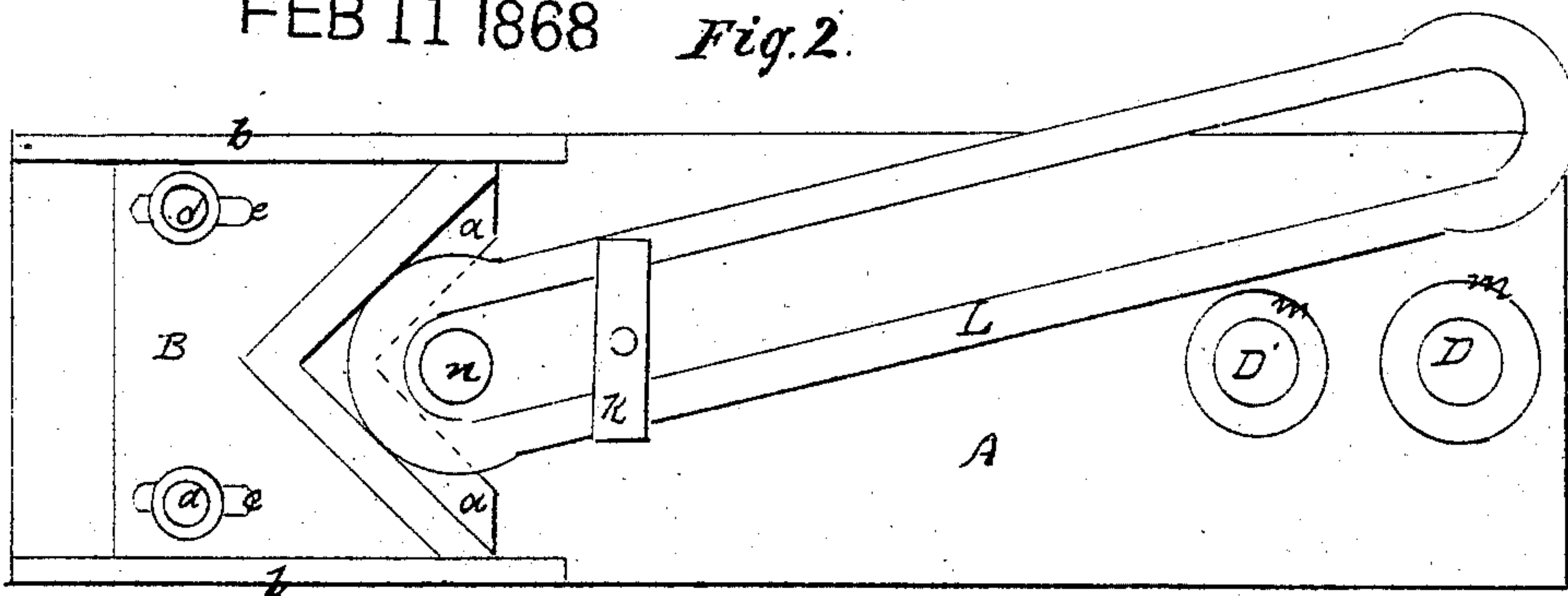


Fig. 3

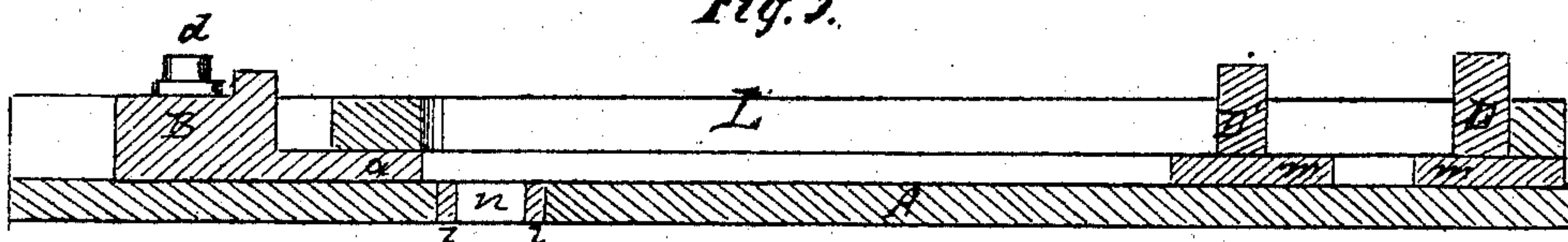
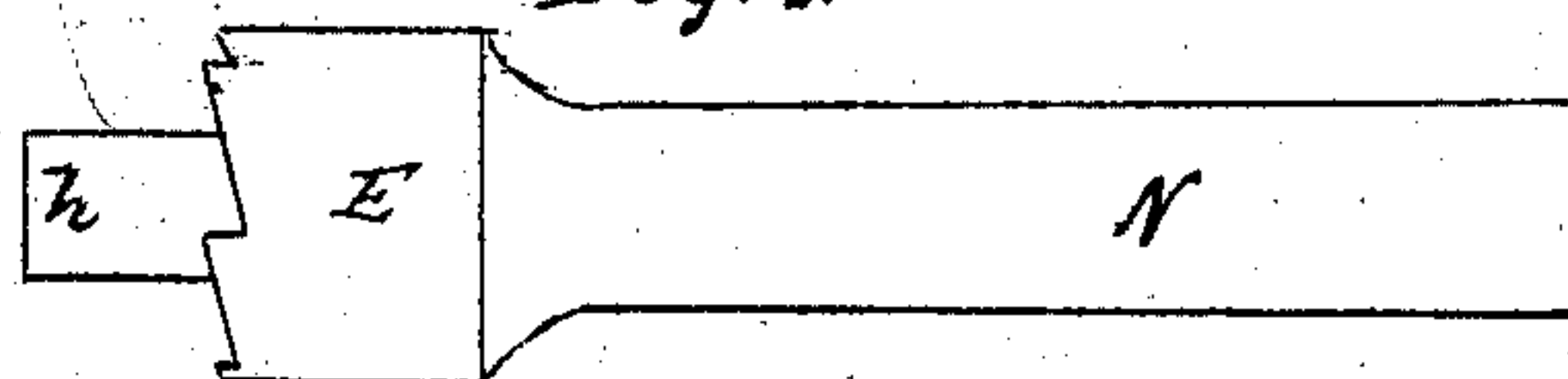


Fig. 4



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Witnesses

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CHARLES KELLOGG, OF DETROIT, MICHIGAN.

Letters Patent No. 74,376, dated February 11, 1868.

IMPROVED APPARATUS FOR BORING LINKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES KELLOGG, of Detroit, in the county of Wayne, and State of Michigan, have invented a new and improved Plate for Boring Links or Eyes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figures 1 and 2 are plan views of the plate, with a link in its proper position for boring.

Figure 3 is a transverse vertical section of the plate and link, through the line *z z*, fig. 1.

Figure 4 is a view of the boring-tool.

Similar letters of reference indicate corresponding parts.

This invention relates to the boring or reaming of the links or eye-rods used in bridges and other structures, when the distances between the centres of the two eyes of such links or rods require to be exactly equal to some distance taken as a standard, so that the links or rods so bored or reamed shall not vary one with another by any appreciable difference.

It consists of a plate, having at one end an adjustable end-rest for the eye or link being bored or reamed, and at the other a standard-stud, projecting vertically from the plate, and upon which stud is placed the first bored eye of each link or rod, while the second is being bored or reamed. The second eye will then be within and upon the adjusted end-rest. The lower end of the boring or reaming-tool is reduced somewhat, and works with smoothly-finished contact in a steel-bushed hole in the plate, the said hole being under the eye to be fitted. When one eye of a link or rod is bored or reamed, it is placed on the standard-stud, the said link or rod then resting longitudinally on the plate which brings the rough eye under the boring-tool, whereby the secured eye is bored at the exact standard distance from the other, as will hereafter be more fully and specially set forth.

In the drawings, A is the plate, cast in one continuous piece, for a purpose to be shown. B is the end-rest, formed with a re-entering angle, or other equivalent profile, for the purpose of receiving and holding firmly the eye or end of a rod or link while the same is being bored. This angular or concave profile is formed with a shoulder or step, shown at *a*, and upon this shoulder the end of the link or eye rests while being bored. Side mouldings, *b*, cast on the plate A, serve as guides to the end-rest B, when the latter is moved for adjustment. They also assist the screw-bolts *d* in holding the said end-rest firmly at any desired point. These screw-bolts pass through slots *e* in the rest B, as shown, and these slots are for the purpose of permitting the adjustment of the end-rest to the link or eye to be bored or reamed. D is the standard-stud, and may be cast on the plate and finished up smoothly, or it may be turned off in a lathe, and tapped into the plate at any point in line with the steel-bushed bearing-step *n*. D' is merely another standard-stud, for a shorter link or eye, and has no reference to the stud D, when the latter is being used. Its presence simply serves to show that one or more of such studs may be cast or formed on the same plate to suit different lengths of links, but, when the eyes of rods are being bored, there could be no such intervening studs on the plate. At the base of the standard-stud is a collar or shoulder, as shown at *m*, which is of the same height as the step *a* of the end-rest, whereby the link or rod is held parallel to the plane of the plate, or at right angles to the axis of the boring-tool, which is perpendicular to the said plane. The boring-tool is shown at E, fig. 4, and is formed with a reduced end, *h*, fitting with finished contact in the hole *n*, which latter is provided with a steel bushing, *i*, for the purpose of preventing the slightest vibration or deviation of the boring-tool upon the position which it is to occupy when boring the eyes or links of each and every one of the whole number to be made accurately equal as to the distances apart of the eyes or end-centres of the links, as before mentioned. The serrated form of the cutting-part of the boring-tool is shown at M, and it may be formed in other different suitable patterns, nothing being claimed in such form. The shank N of the tool is connected with the driving-power by any suitable means which permits the raising of the tool sufficiently to place the eye or link in position, as shown. L is a link in its two positions, when being bored, which operation of boring will now be described.

The links, after having been formed with their end curves and lengths approximating as closely to the required standard as may be desired, are then ready for being bored out to the exact standard length of centres. The end-rest is then adjusted to bring the end-curve of the link, when resting therein, centrally over the hole *n*,

with the link against and outside of the standard-stud, but resting on the shoulder, *m*, of the same, as shown at fig. 2. The boring-tool descends, its end, *k*, entering the hole *n* before the cutting-part *M* encounters the link. When the first end is bored through, it is placed on the standard-stud, which it will exactly fit. It is then clamped by the button *k*, in the position shown at figs. 1 and 3, and when this end is bored also, the operation is completed, to be repeated with any link requiring to be brought to the standard distance of centres.

The operation for boring the terminal eyes of rods is identical with that above described. Thus the operation of boring out any number of links or eyes to a certain standard, as before said, is, by means of my invention, performed rapidly and with uniform and unerring results. It has also the important advantageous feature of simplicity, and requires only the attendance, ordinarily, of one person, who can be taught by a few precepts to attend the operation properly, thereby dispensing with expensive skilled labor.

The plate *A* being of one continuous piece, the expansion of it, due to any change in temperature from day to day, will be compensated by the proportionate expansion of the links or rods, whereby the same will be made all of equal standard length as to the distance between the bored centres.

This invention, though generally applicable to any purpose answering to the conditions above set forth, is particularly designed for boring out the links and eye-rods entering into the construction of truss and other bridges, where the thrust of the same is sustained by systems of links or eye-rods arranged parallel to each other, and fitted on the same transverse bolts or rods in the chord of the bridge. Any appreciable difference in the lengths of such rods or links would render the bridge more or less defective and unsafe, from the unequal strain sustained by the said links or rods. This exactness of length is frequently so imperatively necessary that any link or rod differing from the standard by the one hundredth part of an inch would have to be rejected.

My improvements provide a machine which has, by repeated practical tests, been proven to accomplish the end desired to within the one-hundredth part of an inch. It is easily constructed, and is a valuable engineering appliance.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

The plate *A*, bearing a standard-stud, *D*, and provided with an adjustable end-rest, *B*, or its equivalent, and hole *n*, all substantially as shown and described, and for the purpose specified.

CHAS. KELLOGG.

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