No. 716,494. Patented Dec. 23, 1902.

I. STUHLMAN.

MULTIPLE DIVIDERS.

(Application filed Feb. 28, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

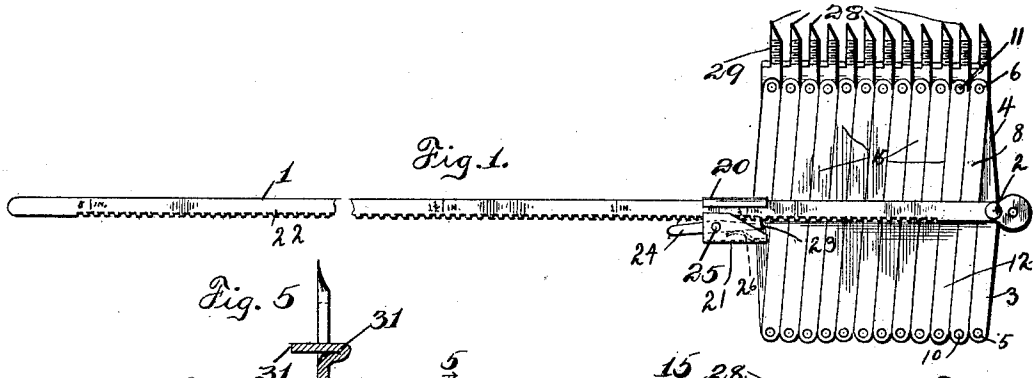


Fig. 5

Fig. 2.

Fig. 3.

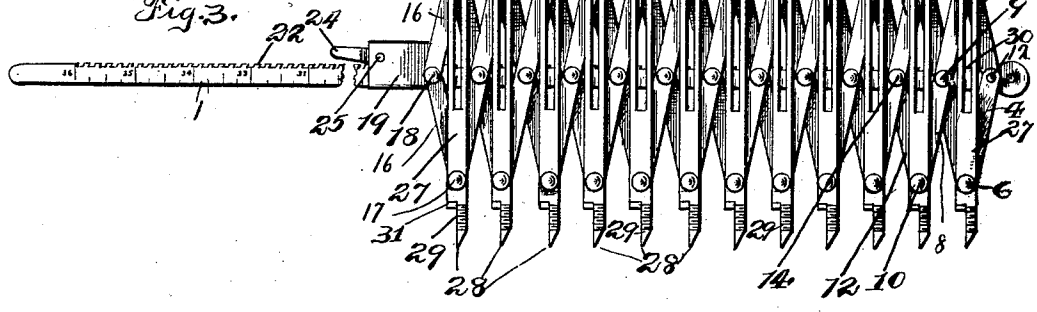


Fig. 4.

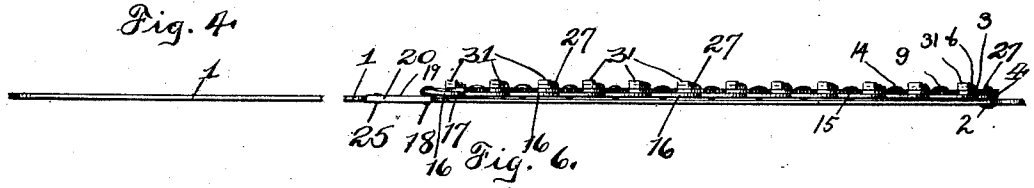
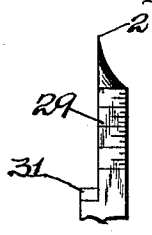


Fig. 6.



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No. 716,494. Patented Dec. 23, 1902.

I. STUHLMAN.

MULTIPLE DIVIDERS.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 7.

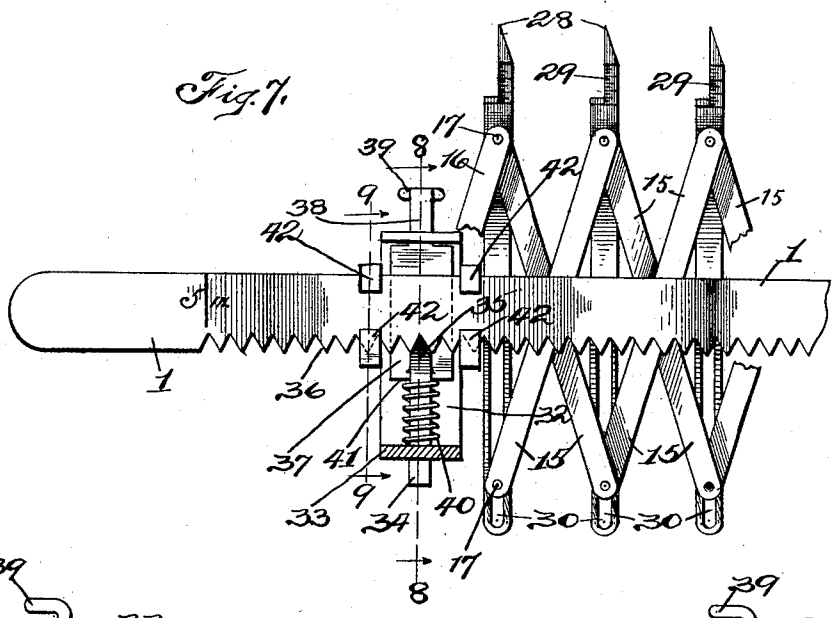


Fig. 8.

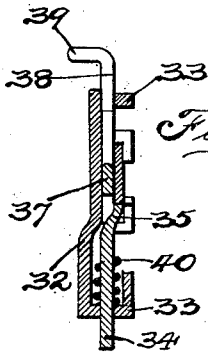


Fig. 9.

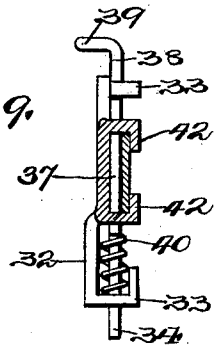


Fig. 10.

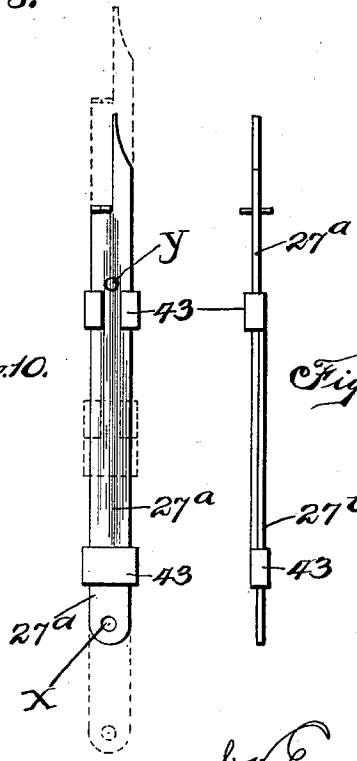


Fig. 11.

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UNITED STATES PATENT OFFICE.

ISAAC STUHLMAN, OF CHICAGO, ILLINOIS.

MULTIPLE DIVIDER.

SPECIFICATION forming part of Letters Patent No. 716,494, dated December 23, 1902.

Application filed February 28, 1902. Serial No. 96,082. (No model.)

To all whom it may concern:

Be it known that I, ISAAC STUHLMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dividers, of which the following is a full, clear, and exact specification.

My invention relates to dividers; and it has for its primary object to provide improved means for making a large number of divisions at one time, so that the same will be especially adapted for the use of tailors in determining with accuracy the proper points at which to locate buttonholes, buttons, &c., and for the use of carpenters and machinists in determining where to locate perforations, saw-cuts, and other points.

Another object of my invention is to provide dividers with a multiplicity of straight-edges or rules, whereby a plurality of lines may be quickly ruled at definite distances apart.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a plan view of my improved dividers, showing the same closed up. Fig. 2 is a similar view showing the same partly opened. Fig. 3 is a plan view of the reverse side. Fig. 4 is an edge view. Fig. 5 is an enlarged detail sectional view on the line 5, Fig. 2. Fig. 6 is an enlarged detail view of one of the points and rules hereinafter described. Fig. 7 is a plan or face view of a portion of the dividers, illustrating a modification hereinafter described. Fig. 8 is a cross-section thereof on the line 8, Fig. 7. Fig. 9 is a similar section on the line 9, Fig. 7. Fig. 10 is a face or plan view of a modified form of arm hereinafter described, and Fig. 11 is an edge view thereof.

1 is a rod, to one end of which is pivoted, by means of any suitable pin 2, a pair of links 3 4, whose outer ends are pivoted at 5 6, respectively, to two crossed levers 7 8, which are themselves pivoted together at their mid-length by means of pin 9 or other suitable device. These two levers 7 8 are in turn pivoted at their outer ends by means of pins 10 11 to two similar crossed levers 12 13, respectively, which, like the levers 7 8, are pivoted together at their mid-length by pin 14, and these latter levers 12 13 are in turn pivoted at their outer ends to the next pair of crossed pivoted levers in a series of similarly crossed and pivoted levers 15, the number being multiplied indefinitely, or as often as it may be desired to make the apparatus divide. The last two of the crossed levers 15 in the series have their outer ends pivoted, respectively, to links 16 by means of pivots 17, and the inner ends of the links 16 are pivoted, by means of pin 18 or other suitable device, to a slide 19, which has flanges 20 21, embracing the rod 1, so as to be capable of sliding along the rod as the pivoted levers open and close. One edge of the rod is provided with teeth or notches 22 and the slide 19 with a dog 23, adapted to engage in the notches for holding the slide, and consequently the pivoted levers, at any position at which they may be set. The dog 23 is formed on a thumb-lever 24, pivoted at 25 to the slide 19 and flange 21 and pressed normally against rod 1 by any suitable spring 26.

27 represents rods or arms, each of which is formed at one end with a point 28 and a straight-edge or rule 29, and to each pair of crossed pivoted levers is pivotally connected one of these rods or arms 27 by means of the pivots or pins which connect the outer ends of the crossed levers together. Each of the levers 27 also has sliding connection with the opposite end of the pairs of crossed levers. This sliding connection may be effected by providing the arm 27 with a slot 30, in which runs the pivot-pin which connects the crossed levers together at that end, as clearly shown in Fig. 3.

By the described means it will be seen that while the crossed levers continually change their angularity with relation to the rod 1 as the series is extended or contracted the arms 27 nevertheless maintain a constant and unchanging parallelism with relation to each other and a constant angle to the rod 1, and as a consequence the rules 29 may be utilized for ruling lines parallel with each other at equal distances apart, while the points 28 may

be used for indicating the point of division in wood when used for carpenters' purposes by simply impressing the same into the surface to be divided. It is also apparent that when used as a tailor's divider for determining the location of buttonholes, where it is necessary that all of the buttonholes be arranged horizontally and parallel with each other, the apparatus may be utilized for ruling the buttonholes horizontally regardless of the curvature of the edge of the garment or material in which the buttonholes are to be formed.

The rules 29 may be provided with graduations, as better shown in Fig. 6, for convenience in determining the length of the line to be ruled, and when the apparatus is used for carpenters' or machinists' purposes it is desirable to provide the ends of the arms 27 with shoulders 31, projecting from both sides thereof, so that all of the points 28 may be quickly placed in a line parallel with the edge of the board or other object to be divided. These shoulders 31 are shown as being formed of a tongue of metal cut from the edge of the arm 27 and folded so as to extend across the latter to produce the shoulders.

If desired, one side of the rod 1 may be marked with inches or other graduations, so as to be used as a yardstick or measure, and the other side may be marked with graduations or numbers which when read with reference to the position of the slide 19 will indicate the distance between the points 28. The first of these, or the yardstick, is shown in Fig. 3 and the other in Figs. 1 and 2.

In Figs. 7 to 9 of the drawings I have shown a modification in the form of the slide and locking-dog. Here the slide consists of a plate 32, whose ends are bent up to form ears 33, through one of which passes one end 34 of a bolt, which carries a tooth 35, constituting a dog for engaging with teeth 36 on rod 1, and thus locking the slide in position. The tooth 35 is shown of V-shaped form and struck up like a tongue from a plate 37, which constitutes the body of the bolt, and the teeth 36 in the edge of the rod 1 are also V-shaped, so that the dog 35 will readily center and engage in the teeth without nicety of adjustment. The other end of the plate 37 is reduced in the form of a stem 38, which passes through the other one of the ears 33 and is formed with a bent portion 39, constituting a thumb-piece for facilitating the disengagement of dog 35, the latter being held normally in engagement by a coil-spring 40, sleeved on the reduced end or stem 34 and bearing between the lower one of ears 33 and shoulders 41, constituted by the lower end of plate 37. The slide is provided on each side of plate 37 with a pair of keepers 42, which are struck up therefrom and turned over the edges of rod 1, so as to hold the rod down flat against the plate 37.

It will be seen that in the operation of the form of invention already described the width of the apparatus decreases as its length is increased. In some forms of work the width of the apparatus is a material hindrance, and hence in order that the arms 27 may decrease as the apparatus is extended they are made of two overlapping members, as shown in Figs. 10 and 11, the same consisting of two members 27^a 27^b, which slide one over the other and are thus held together by straps 43, formed on their ends, respectively, and overlapping each other, X Y being the holes through which the pivot-pins at the outer ends of the crossed levers pass.

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

1. In a device for the purpose described the combination of a series of crossed pivoted levers, a rod having teeth and to one end of which said series is pivotally connected at one end, a sliding connection between the other end of said series and said rod and having a tooth whereby it is locked to the teeth of the rod and divider-points carried by said levers at their outer ends, substantially as set forth.

2. In a device for the purpose described the combination of a series of crossed pivoted levers, a rod having teeth and to which one end of said series is pivotally connected, a slide on said rod pivotally connected to the other end of said series and a dog pivoted to the slide having a tooth for locking said slide to said rod, substantially as set forth.

3. In a device for the purpose described the combination of a series of crossed pivoted levers, a rod having teeth and to which one end of said series is pivotally connected, the other end of said series having sliding connection with said rod, said connection provided with a tooth adapted to engage the teeth of the rod, and arms having divider-points pivotally connected to said levers at the ends thereof, substantially as set forth.

4. In a device for the purpose described the combination of a series of crossed pivoted levers, pivoted links pivotally connecting one end of said series to one end of said rod, pivoted links pivoted to said series at the other end thereof and having sliding connection with said rod, and arms carried by said levers and each consisting of two overlapping members one of which is provided with a divider-point, substantially as set forth.

5. In a device for the purpose described the combination of a series of crossed levers pivoted together in pairs at intermediate points in their length one end of the levers of each pair being pivoted to the adjacent ends of the levers of the next pair, and arms consisting of two overlapping members connected at their outer ends respectively to the pivots at the ends of said levers and having divider-points, substantially as set forth.

6. In a device for the purpose described the combination of a series of crossed pivoted levers, arms having shoulders and ends projecting beyond the same, said arms connected

to the ends of said levers, substantially as set forth.

7. In a device for the purpose described the combination of a series of crossed pivoted levers, a rod to which one end of said series is pivoted and with which the other end of said series has sliding connection, and arms formed with shoulders cut from the edges thereof and folded across the same, said arms extending across said rod and having pivotal connection with the ends of said levers, substantially as set forth.

8. In a device for the purpose described the combination of a series of crossed levers and arms each comprising overlapping members constituting sliding sections the outer ends of said arms being pivotally connected to the ends of said levers, substantially as set forth.

9. In a device for the purpose described the combination of a series of crossed pivoted levers, a rod having teeth to which one end of said series has pivotal connection, a slide pivotally connected to the other end of said series and having keepers bent up around the edges of said rod and apertured lips, a plate having its ends passing through said lips and provided with a struck-up tongue constituting a dog for engaging the teeth on said rod and a spring arranged on a part of said plate and bearing between the latter and one of said lips for holding said dog in engagement, substantially as set forth.

ISAAC STUHLMAN.

Witnesses:
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