

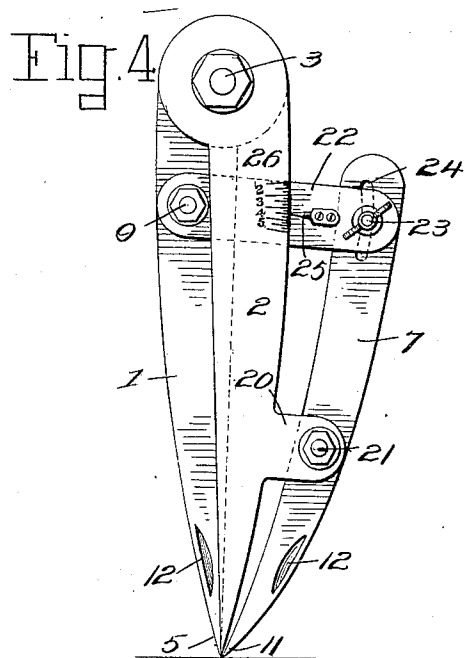
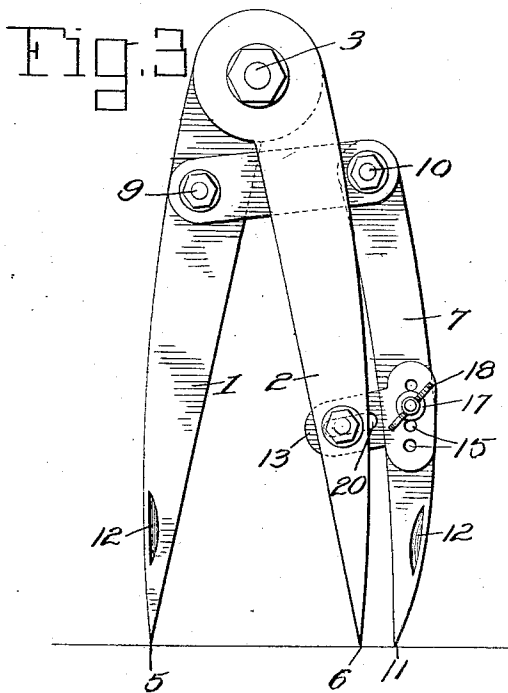
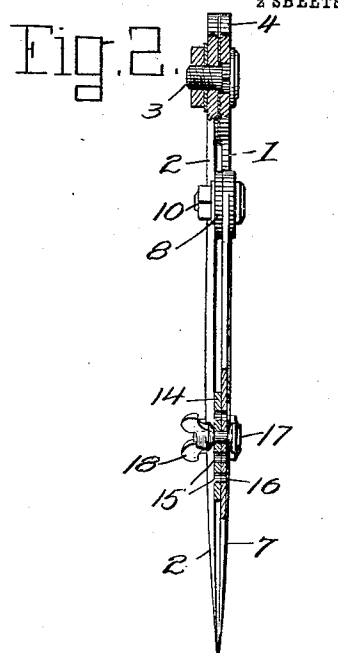
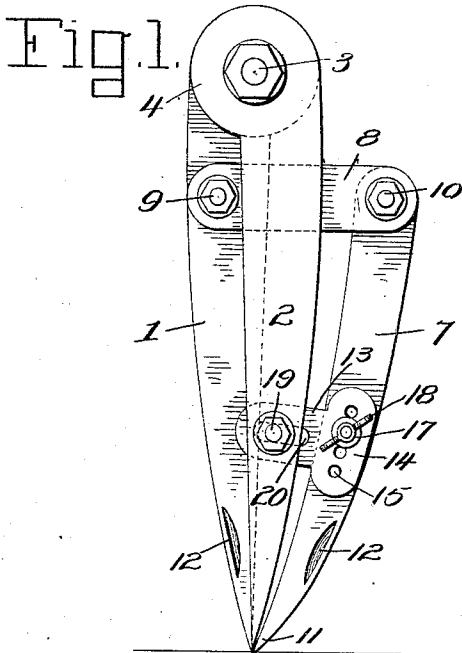
J. M. KING.  
DIVIDERS,

APPLICATION FILED NOV. 7, 1908.

936,135.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.



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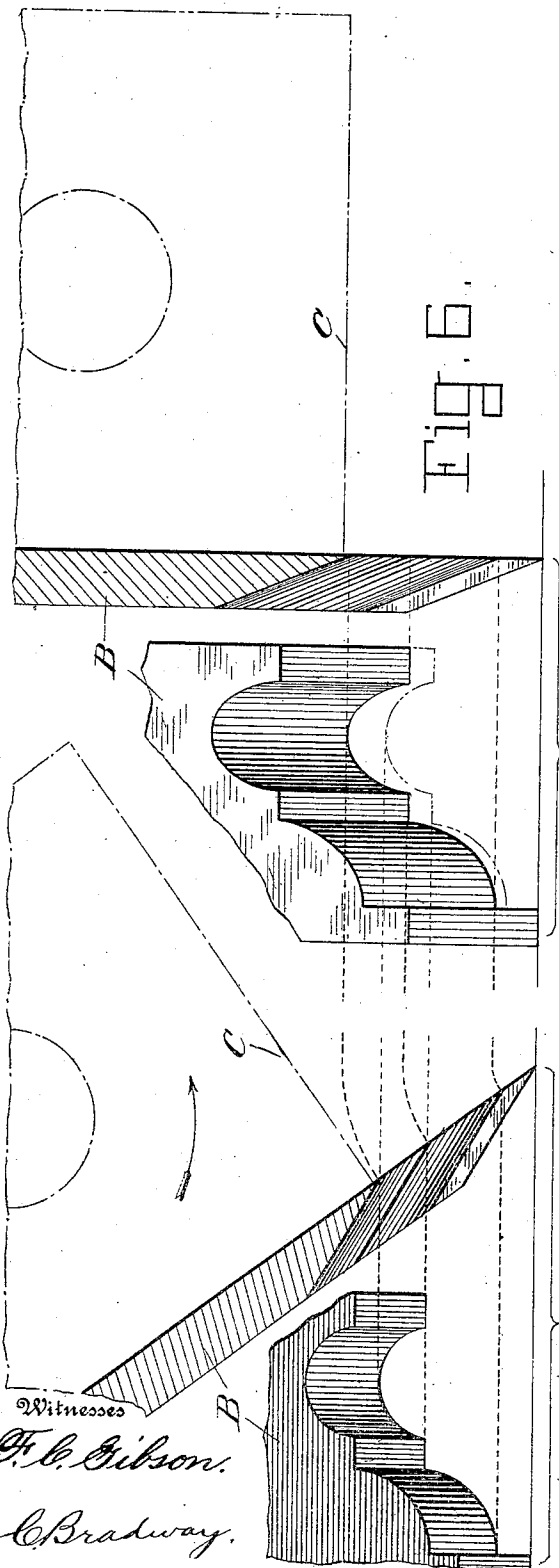


Fig. 6.

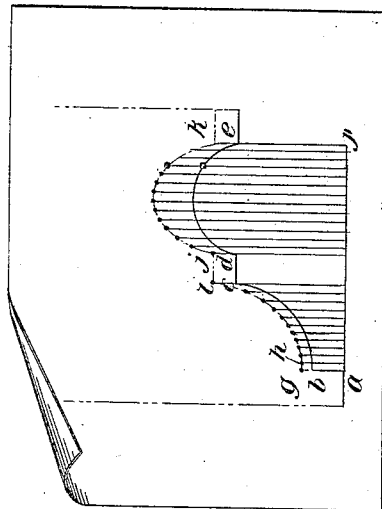


Fig. 7.

Fig. 8.

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# UNITED STATES PATENT OFFICE.

JOHN M. KING, OF WILLIAMSPORT, PENNSYLVANIA.

## DIVIDERS.

936,135.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed November 7, 1908. Serial No. 461,545.

*To all whom it may concern:*

Be it known that I, JOHN M. KING, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented new and useful Improvements in Dividers, of which the following is a specification.

This invention relates to dividers designed especially for making templets to be used in getting the proper contours in cutter blades or knives for molders and shapers.

The invention has for one of its objects to provide an instrument of this character which is of comparatively simple and inexpensive construction, reliable and efficient in use, and readily manipulated for enabling templets to be accurately laid out.

Another object of the invention is the provision of a divider having an auxiliary leg which is used for plotting the templet from a pattern of the molding to which the main legs of the dividers are set at evenly spaced points so that the proper contour of the cutter or knife can be obtained with respect to the molding.

A further object of the invention is the provision of adjusting means whereby the dividers may be used for making templets for cutters adapted for different sized heads and for different angles of cut.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate certain embodiments of the invention, Figure 1 is a front view of the dividers closed. Fig. 2 is a side view thereof with portions shown in section to illustrate the details of construction. Fig. 3 is a side view of the dividers in open position. Fig. 4 is a side view of a modified form of the device. Fig. 5 illustrates a longitudinal section and a fragmentary front view of the cutter or knife showing the position thereof in finishing a molding. Fig. 6 is a longitudinal section and fragmentary front view illustrating the position of the knife or cutter at right angles to the molding for depicting the relation of the contour of the knife with the molding. Fig. 7 is a diagram for illustrating the manner of laying out the templet.

Similar reference characters are employed

to designate corresponding parts throughout the views.

Referring to the drawings, 1 and 2 designate the legs of the dividers which are hingedly connected by a bolt 3 that passes through the heads 4 to serve as a pivot on which the legs can swing open or closed and these legs are constructed of flat metal and are adapted to close over each other like scissors blades, so that their points 5 and 6 meet when the dividers are closed. The dividers are provided with an auxiliary leg 7 which is connected at its upper end by a link 8 with the main leg 1, the link being pivotally connected with the last-mentioned leg by a pivot 9 and similarly connected by a pivot 10 with the auxiliary leg 7. The auxiliary leg has its point 11 so arranged to meet the points 5 and 6 of the main legs when the dividers are closed. The legs 1 and 7 are provided with notches 12 in their faces for enabling the thumb nails to be engaged therewith for facilitating the opening and closing of the dividers. A connecting element 13 is provided between the main leg 2 and auxiliary leg 7 at an intermediate point of both, so that by pulling the legs 1 and 7 apart, the legs 2 will also open in a definite relation to the leg 7. The said member 13 has a plate portion 14 that is provided with apertures 15 arranged in a common line and adapted to register with apertures 16 that are provided in the auxiliary leg 7 and disposed in a line extending longitudinally thereof. This plate 14 is connected with the leg 7 by a bolt 17 that has a thumb nut 18, the bolt serving to pivotally connect the member 13 with the auxiliary leg 7. The member 17 extends across the leg 2 and is connected therewith by a bolt 19 which extends through an opening in the leg 2 and through a slot 20 in the member 13. By properly adjusting the bolts 17 and 19, the parts can be so connected as to enable the dividers to be used for laying out templets for cutters to be used at any desired angle or on heads of any desired size.

In the modification shown in Fig. 4, the connecting element 21 that corresponds to the member 13 of Fig. 1, is integrally formed with the main leg 2 and connected with the auxiliary leg 3 by a bolt 21 that constitutes a pivot. The link 22 which corresponds to the link 8 of Fig. 1 has its outer end adjustably connected with the auxiliary leg 7 by a bolt 23 that passes through an opening in

the link and through a slot 24 in the auxiliary leg, whereby the position of the auxiliary leg with respect to the main leg 2 can be varied to adapt the dividers for laying out templates of different forms. The blades or cutters for shapers and molders finish at different angles according to the size of the head. For instance, on a head four and a quarter inches square, the blades finish at an angle of  $64^{\circ}$  with respect to the plane of the work, while with a head three and one half inches square, the blades or cutters finish at an angle of  $60^{\circ}$  to the work. Owing to the different positions at which the blades or cutters finish, it is necessary to change the contour of the cutting edges of the blades accordingly, and for this purpose the present tool can be adjusted to obtain the proper contour of the cutting edges, according to the size of the head or angle of the blades, it being necessary to adjust the auxiliary leg of the tool in accordance with the particular angle of the cutters or blades desired. For facilitating the adjustment of the auxiliary leg for the various sized cutter heads commonly used on molders or shapers, an index 25 is provided on the link 22 and coöperates with a scale 26 on the main leg 2 for determining the proper adjustment of the parts. For instance, when a templet is to be made for a blade to be used on a two-inch head, the parts will be adjusted to bring the index 25 opposite the division 2 on the scale.

In grinding or shaping a cutter or knife to produce a molding of given form, it is necessary to impart to the cutter a cutting edge which conforms to the molding when the cutter is disposed at the proper angle to the plane of the molding. This angle, in practice, is usually between  $54^{\circ}$  and  $61^{\circ}$  to the plane of the bed of the molder. In order to realize these conditions, it has been extremely difficult heretofore to grind the blade to produce a molding of given contour, but with the use of the present dividers, a templet can be quickly and accurately laid out with reference to the desired shape of the molding. In making the templet, a pattern *a, b, c, d, e, f*, is laid out on a piece of paper to represent the exact cross section of the molding device and on this pattern are erected parallel lines disposed at right angles to the base line *a-f* and spaced apart at suitable intervals. After this pattern is thus produced, it is merely necessary to adjust the dividers along the first line *a-b* and bring the points 5 and 6 of the main legs 1 and 2 to coincide with the point *a* and point *b*. A third point *g* is then pricked in the paper by the auxiliary blade. The dividers are then adjusted to the next line of the pattern to obtain the second point *h* and this operation is repeated at the successive lines until all the points are plotted for

forming the templet desired, the edge of the templet being indicated by the line *g, i, j, k, l*. The templet is cut out along this line and is used for gaging the cutter during the grinding thereof.

In Figs. 5 and 6, the cutter B is shown which follows the form of the templet developed in Fig. 7, and in Fig. 7, the shape of the blade is indicated by the broken lines. Several of the blades are mounted on a head of any suitable form such as indicated by the broken lines C and when the blade is in the position shown in Fig. 5, the cutting edge conforms precisely to the shape of the molding.

In Fig. 6, the blade is supposed to be at right angles to the molding to illustrate the variation between the surface of the molding and the cutting edge of the blade to thereby render more clear the fact that the edge of the cutter must be ground not to conform to the surface of the molding but in a predetermined relation thereto depending upon the angle of the cutter on the head.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim is:—

1. A device of the class described comprising a pair of main legs, a pivot connecting the legs together, a link pivotally connected with one of the legs and extending transversely to the second leg, an auxiliary leg pivotally connected with the link and arranged at the side of the second leg opposite from the first main leg, a member adjustably connected with the auxiliary leg at a point between the free extremity thereof and its connection with the said link, and means for pivotally connecting the said member with the second leg at a point between its ends.

2. A device of the class described comprising a pair of main legs, a pivot connecting the legs together, a member pivotally connected with one of the legs and extending across the other leg, an auxiliary leg having one end pivotally connected to the free extremity of the said member, a member connecting the auxiliary leg with the main leg other than the one to which the first-mentioned leg is connected, a fixed pivot connecting one of the members with the aux-

iliary leg, and an adjustable pivot connecting the other member with the auxiliary leg.

3. A device of the class described comprising a pair of main legs pivotally connected, 5 a link connected with one of the main legs and extending across the other, an auxiliary leg connected with the link and arranged with its point disposed in a line connecting the points of the main legs, and means for

connecting the auxiliary leg with the main 10 leg other than the one to which the link is connected.

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

JOHN M. KING.

Witnesses:

C. L. HARRIS,  
W. R. GIBSON.