

(No Model.)

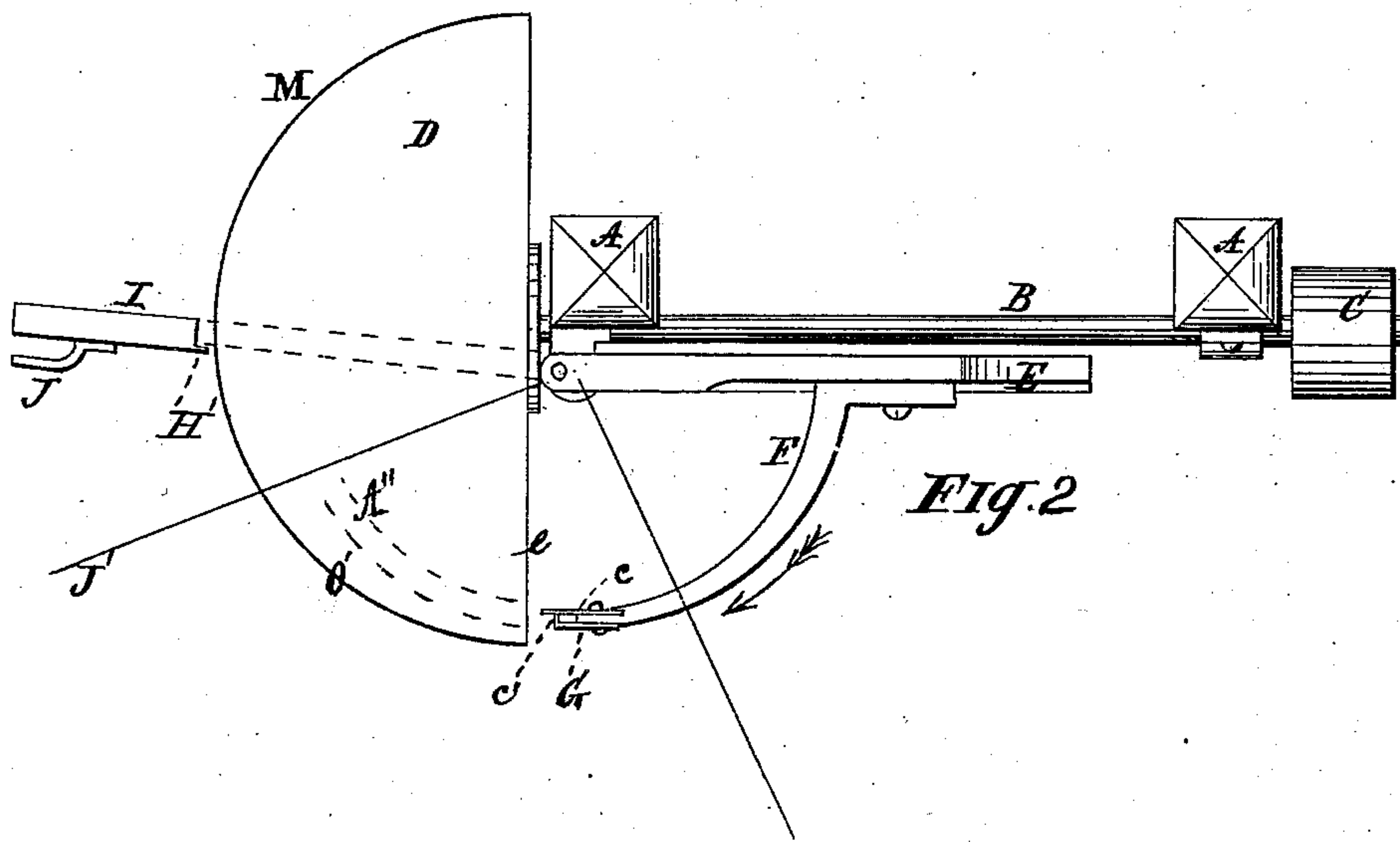
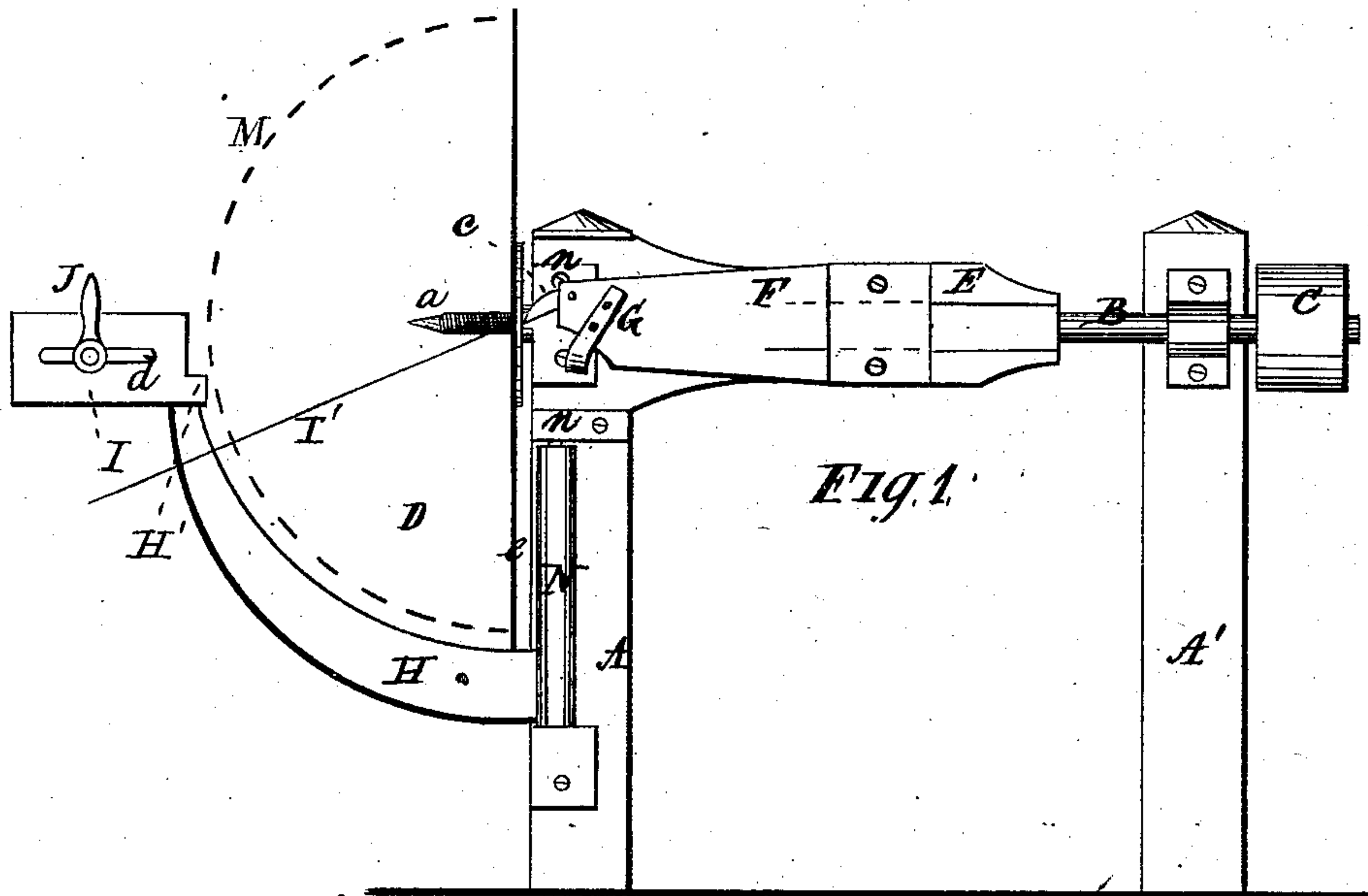
2 Sheets—Sheet 1.

C. NEFF.

MACHINE FOR MAKING WOODEN BOWLS.

No. 259,196.

Patented June 6, 1882.



Witnesses.  
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*J. H. Burridge.*

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*W. H. Burridge atty.*

(No Model.)

2 Sheets—Sheet 2.

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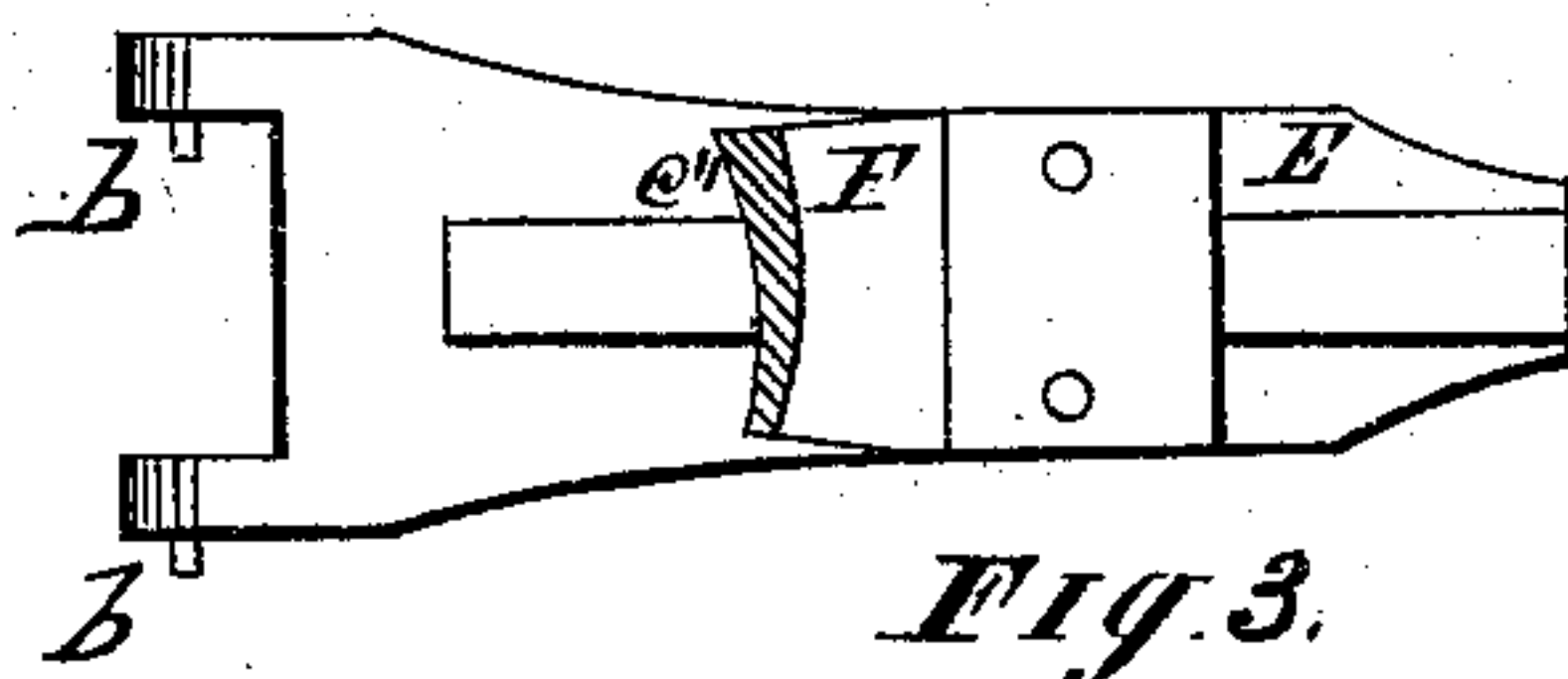


Fig. 3.

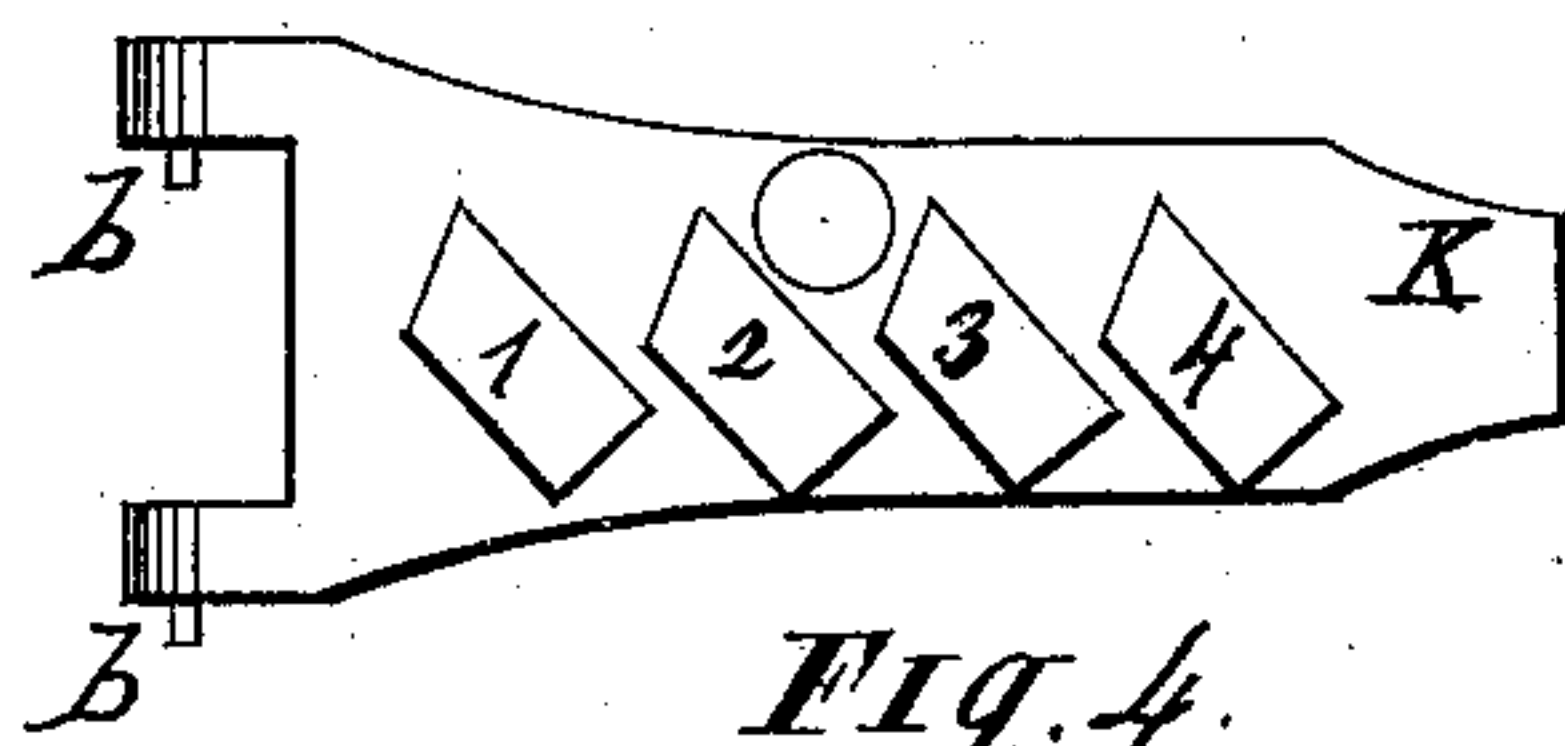


Fig. 4.



Fig. 5.

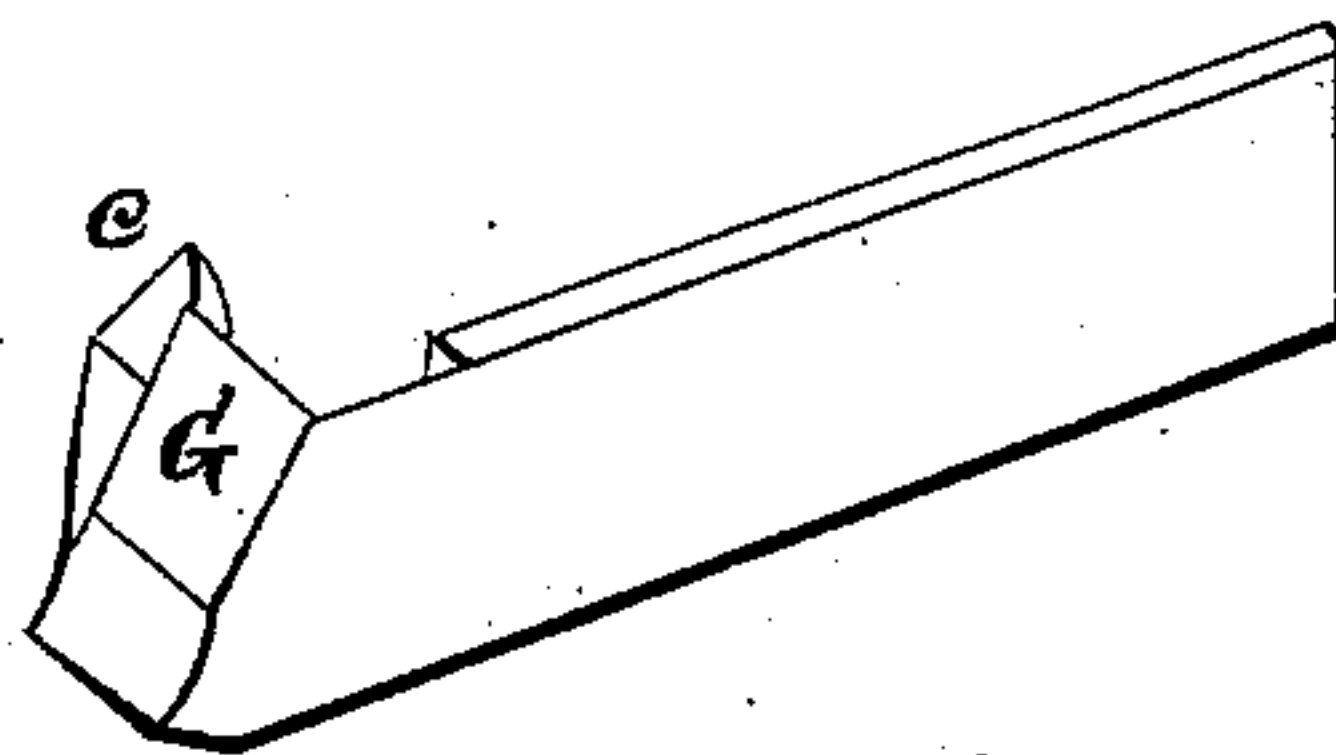


Fig. 7.

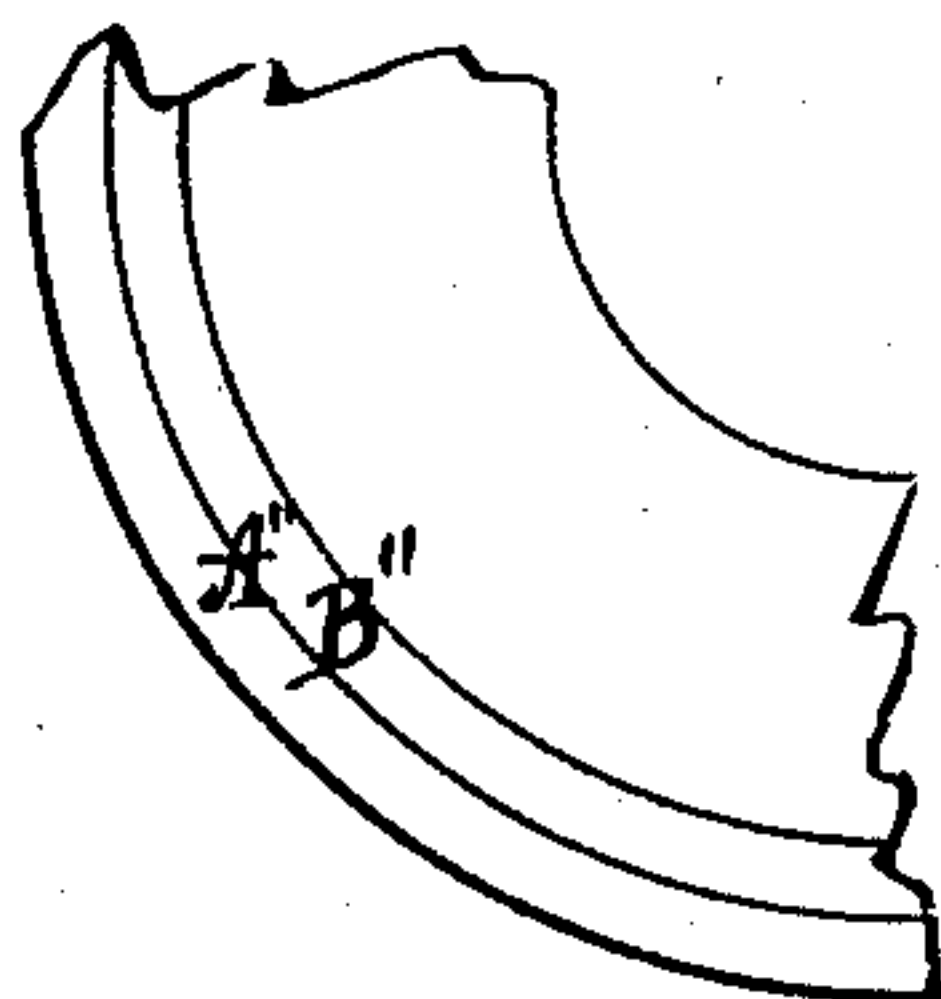


Fig. 6.

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# UNITED STATES PATENT OFFICE.

CORNELIUS NEFF, OF ELMORE, OHIO.

## MACHINE FOR MAKING WOODEN BOWLS.

SPECIFICATION forming part of Letters Patent No. 259,196, dated June 6, 1882.

Application filed January 23, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS NEFF, of Elmore, in the county of Ottawa and State of Ohio, have invented certain new and useful Improvements on Machines for Making Wooden Bowls; and I do hereby declare that the following is a full, clear, and complete description thereof.

This invention, as above said, is for making wooden bowls; and the object of the invention is not only to economize the material of which the bowls are made by producing a larger number of the articles from a given sized block than can be made from the same sized block by the mechanism usually employed for that purpose, but also a saving of time in the manufacture of the same.

A full and complete description of the invention and the operation of the same for the purpose above alluded to is as follows, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 shows a side elevation of the machine. Fig. 2 is a plan view. The rest of the figures are detached sections, to which attention will be called in the course of this description.

In the standards A A', Fig. 1 of the drawings, is journaled a shaft, B, having on one end a pulley, C, by which the shaft is driven. The opposite end of the shaft is provided with a screw-center, *a*, onto which is screwed a block, D, from which bowls are to be cut, as presently shown.

E is a crane pivoted to the standard A by means of pivotal studs *b*, Fig. 3, having their bearings in suitable steps, *n*, and from which they are readily taken for the removal of the crane. The pivotal axis of the crane is at right angles to the axial line of the shaft B. The axial line of the crane does not intersect the axial line of the shaft, but is a little removed from the side thereof, as seen in the drawings.

To the crane is connected a curved arm, F, Fig. 2. On the inner side of the end of the arm and flush therewith is attached a pointed lateral cutting-blade or cutter, *c*. On the outer side of the arm is secured a cutter, G, so that there is but a slight projection of the cutters

beyond the sides of the arm. The end of the said cutter G is turned at right angles across the end of the arm, forming a horizontal cutting-lip, *c'*, Fig. 2, which lip is a little wider than the thickness of the arm, that the arm may follow the cut of the lip. Said lip follows the lateral cut made by the cutter *c*—the leading one of the two cutters.

It will be observed in Fig. 3 that the arm F is not transversely of an equal thickness, it being thicker along the upper edge than along the lower one—that is to say, the arm tapers downward from the upper to the lower edge, as shown in said Fig. 3.

From the side of the standard A swings an arm, H, below the crane E, above described. The axial line of the arm is in alignment with the axial line of the crane. The one, however, swings independently of the other, there being no pivotal connection of the two. The extreme end of the arm H is provided with an adjustable rest, I, secured thereto by a screw and hand-nut, J, passing through a slot, *d*, in the shank of the rest and head of the arm, substantially as shown in the drawings.

Fig. 4 shows a side view of a facing-arm, K, which takes the place of the crane E, preparatory to using the said crane, as will hereinafter be shown.

To the face of the arm K are secured a series of cutters, 1 2 3 4, which may be more or less in number. Said cutters stand out beyond the face of the arm, as will be seen in Fig. 5, which represents an edge view of the arm and cutters.

The practical operation of the above-described machine is substantially as follows: A block of wood of the proper size of which to make a nest of bowls is secured to the shaft B by screwing it onto the screw-center *a*, above referred to. Said block is indicated by the lines M in Figs. 1 and 2. The rough exterior of the block, termed a "skull," is turned off by the cutters *c* and G of the arm F, projecting from the crane E, which for that purpose is swung around from its position shown in Fig. 2 to about the position indicated by the lines I' and J', leaving an uncut section of the block around the center *a* for forming the plain flat bottom of the bowl. The skull attached to the block by the neck or uncut sec-



tion alluded to is removed therefrom by severing the neck, which is then smoothed off, and also the whole outer surface or back of the bowl, by a smoothing-tool held in the hand of the operator. For this purpose the arm H is swung around from the face of the block to the position shown in Figs. 1 and 2. Upon the rest I of the arm the operator holds his smoothing-tool for a rest, and swings the arm around again to the face *e* of the block, allowing the tool to shave and smooth off the surface of the block, which is then polished and finished in the ordinary way for the back of the first bowl, which is indicated by the line O in Fig. 2. The second cut is made in a similar way whereby the first bowl is made from the block. To this end the crane and arm permanently attached together and adapted to make the first and largest cut circumferentially for skulling the block for the largest bowl, are removed and a similar crane and curved arm and cutters put in the place thereof. This latter arm and cutters differ from the first only in having the arm of a quicker curve, and therefore of a shorter radial line from the axial point of rotation to the cutters terminating the arm, this radial difference of the two arms being just enough to give the thickness of the bowl to be cut from the block, as seen at A'' in Fig. 6, indicating the first bowl, and B'' the first cut after skulling the block, which is also indicated by the dotted lines in Fig. 2 at O'.

It will be proper to say here that before any cutting is made the face *e* of the block is dressed off by means of the facing-tool. (Shown in Fig. 4 and above described.) The arm K of said tool is hung by its pivoted studs, *b*, in the steps *n*, by which the crane E is supported, said crane being removed to give place to the facing-tool, which, when properly adjusted in the place of the crane E, is pushed forward toward the face of the revolving block, bringing the cutters 1 2, &c., to the rough face of the block, which is dressed off thereby and smoothed and finished before the skulling and cutting above alluded to are done.

The facing and skulling having been effected, the arm and cutters for the second cutting, above described, are placed in the pivotal steps *n*. The arm is then swung around in direction of the arrow, bringing the cutters *c* and *c'* to the revolving block, into which the lateral cutter *c* is forced, thereby making a narrow smooth scarf, which is followed at the same time by the transverse cutter or bit *c'* taking a wider cut, as indicated by the dotted line A'' in Fig. 2 and B'' in Fig. 6, so far within the outer surface of the block as is required for the thickness of the bowl. The cutting is made into the block to about the line J', leaving an uncut section beyond the cut, forming a neck connecting the bowl to the block the same as when the skull was taken off, as above described. The cutters are now withdrawn from the scarf, when a slight blow will detach the bowl from the block. The arm H is now

swung around to the position shown in Figs. 1 and 2, the rest adjusted to the remaining portion of the block, and the smoothing-tool applied by the operator thereto for finishing the face of the block, which will now be the back of another bowl, to be cut therefrom in the same way and by similar cutters attached to a crane and arm of a smaller size, adapted to the size of the next bowl in order, and so on until the whole block has been cut up into bowls, each bowl requiring a special arm, crane, and cutters, according to the size of the bowl to be cut from the block, each crane and arm being successively removed to give place to the one next in the series of bowls to be cut from the block, be they more or less in number.

In cutting bowls from a block, as usually done, one cutter only (secured on the convex side of the arm) is used, and that corresponding to the transverse cutter G. The result has been that the cut made with a single cutter is rough and the wood not unfrequently torn, so that a considerable portion of the block has to be cut away to dress it up for finishing, thereby causing a waste of material in shaving off the roughness made by the cutter. In this way nearly enough of the block is wasted in a nest of four or five to make an extra medium-sized bowl. This waste is wholly avoided by using the lateral cutter or blade *c* conjointly with the transverse cutter G, which, as above said, makes a smooth clean cut, so that but little material is shaved off for giving the bowl a proper finish.

The arm F in ordinary machines of this class is of a uniform thickness from the upper to the lower edge instead of being beveled transversely, as shown in Fig. 3 at *c''*. The arm being transversely of equal thickness requires that the cut made in the block should be wider than the thickness of the arm to allow the arm to follow in after the cut, as the arm, being of equal thickness, will hold a relation to the cut more or less in a diagonal direction thereto; hence the necessity of having a wide cut or scarf for the admission of the arm.

It will be obvious that this condition of the arm will cause a waste of the material of the bowl by cutting so wide a scarf that the arm may enter. This waste is avoided by having the arm transversely beveled, as above described, and shown in the drawings, which adapts the arm to the curve of the cut, and at the same time allows the chips to escape more readily than the arm ordinarily used. It also avoids the frictional resistance of the chips. This saving of the material of the block, together with that above specified, will in a nest of four or five be sufficient to make an extra bowl.

In cutting large-sized bowls the cutters are sometimes apt to tremble, especially if the wood is unusually hard. To prevent this the lower edge of the arm F is made to rest upon the shoulder H' of the arm H, which is swung around to the end of the arm F in front of the



face of the block, so that the said arm H may rest upon the shoulder and be supported thereby and prevented from trembling, as the shoulder forms a brace-rest for the support of the arm in a vertical and lateral direction.

Facing the block in the ordinary way is done with a hand-tool, requiring much time and care. Otherwise the work is roughly done and unevenly. By using the facing-arm above described the work is better done, as it obtains uniformity to the depth and diameter of the bowls, while doing the same in much less time than by a hand-tool.

Fig. 7 represents a cutter in which the lateral blade *c* and the transverse cutter *G* are in one piece. This union of the two cutters answers well; but for general use it is preferred to have them separate. The cutter is represented as having a square cutting end; but it may, however, be made with a curved end transversely.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. In combination with a machine for cut-

ting wooden bowls, a crane provided with an arm tapering from the upper to its lower edge and carrying a cutting-tool, substantially as and for the purpose described.

2. In combination with the revolving spindle, the arm *F* and the arm *H*, provided with an adjustable brace-rest adapted to form a support for the said arm in a vertical and horizontal direction, said arms swinging from a common axis of motion, substantially as and for the purpose specified.

3. In combination with a machine for making wooden bowls, a facing-tool consisting of an arm, *K*, provided with a series of cutters arranged obliquely in the plane of the said arm, and having pivotal studs, whereby it is adjusted in the machine for operating in the manner as described, and for the purpose specified.

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

CORNELIUS NEFF.

Witnesses:

J. H. BURRIDGE,

W. H. BURRIDGE.