

G. A. GRAY, Jr.  
Machines for Turning Pulleys.

No. 138,394.

Patented April 29, 1873.

Fig. 1

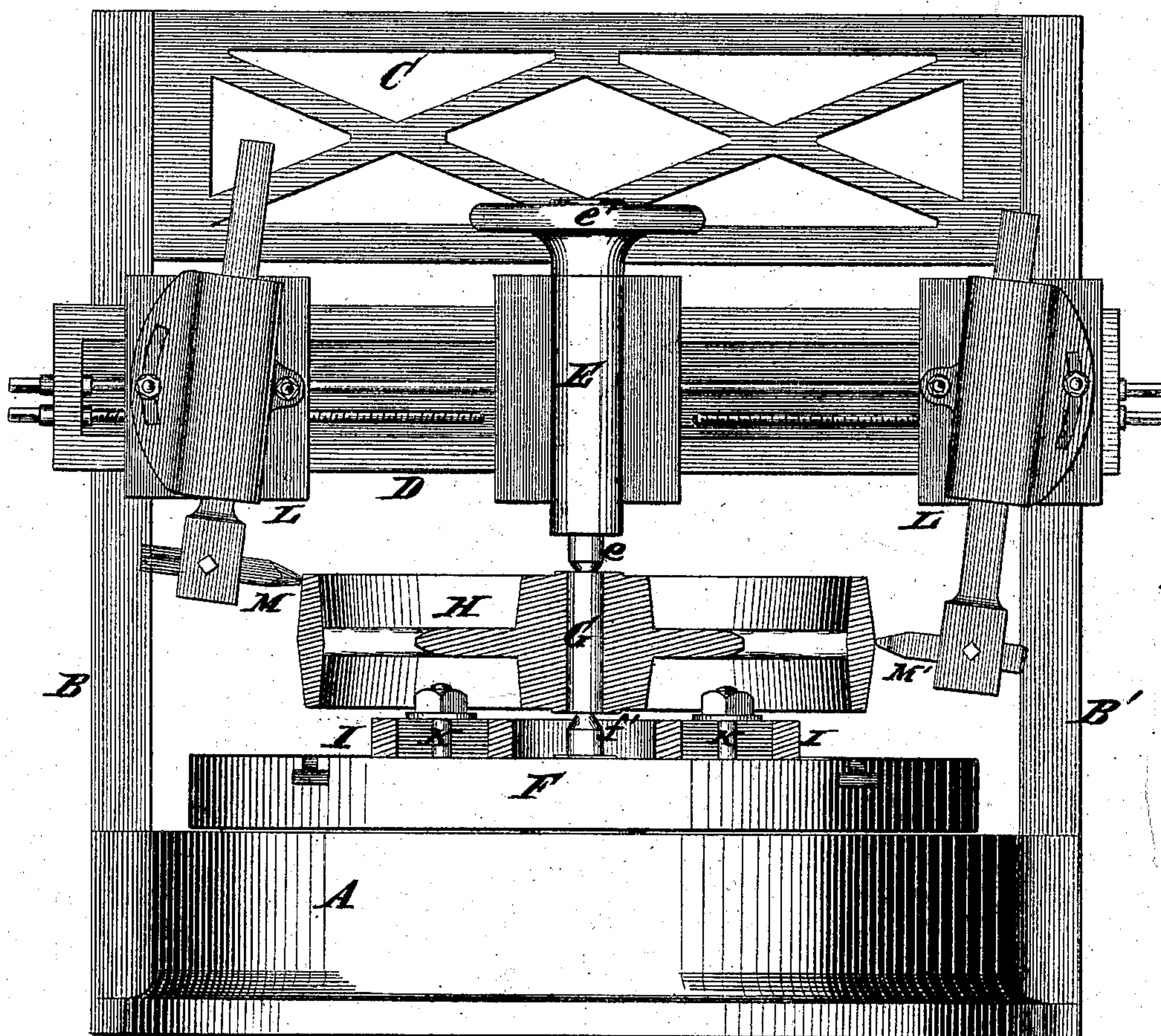
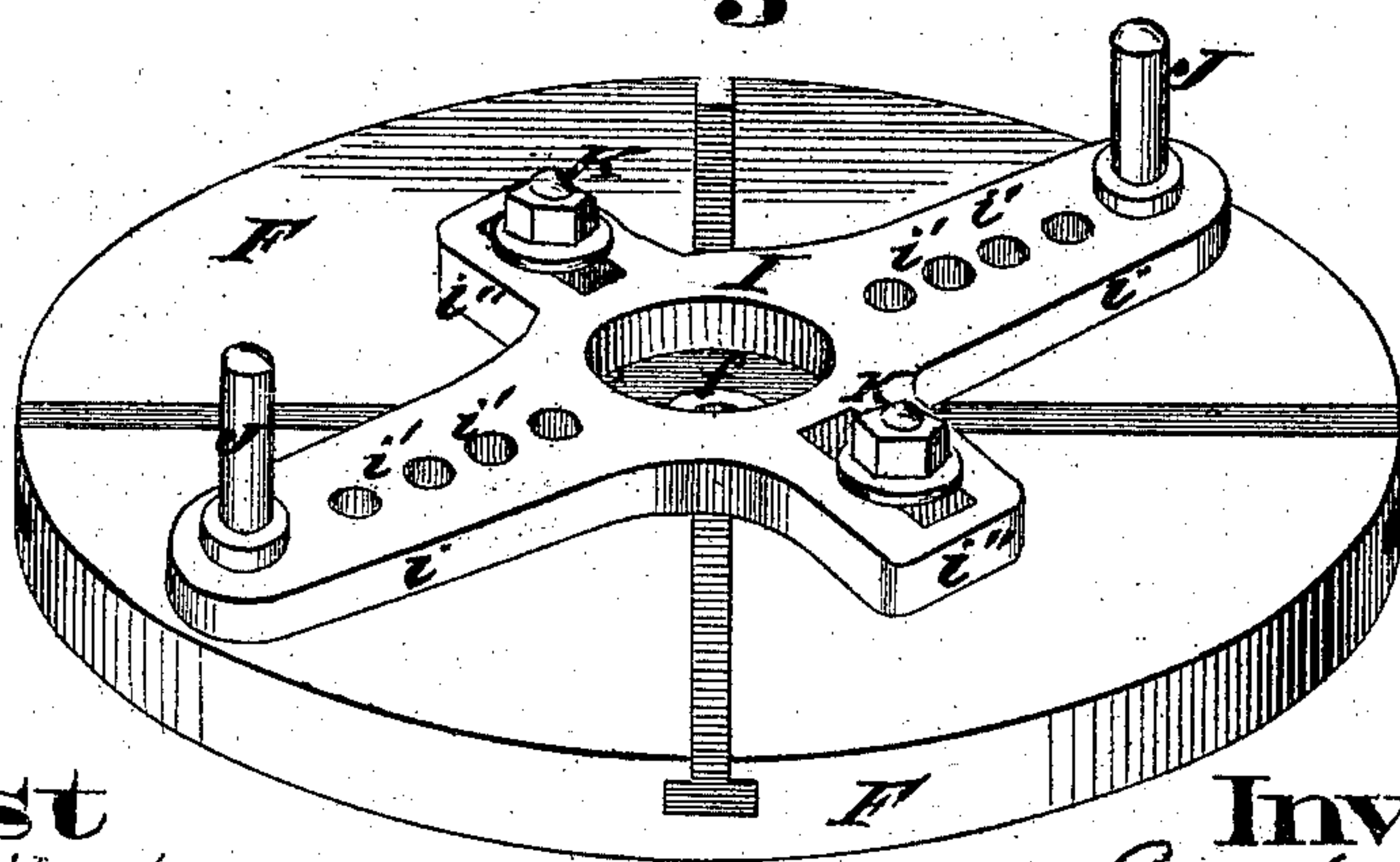


Fig. 2



Attest  
Henry Millward.  
[Signature]

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# UNITED STATES PATENT OFFICE.

GEORGE A. GRAY, JR., OF HAMILTON, OHIO.

## IMPROVEMENT IN MACHINES FOR TURNING PULLEYS.

Specification forming part of Letters Patent No. **138,394**, dated April 29, 1873; application filed August 20, 1872.

*To all whom it may concern:*

Be it known that I, GEORGE A. GRAY, Jr., of Hamilton, Butler county, State of Ohio, have invented a certain new and useful Machine for Turning Pulleys, of which the following is a specification:

### *Nature and Objects of Invention.*

My invention consists of a certain combination of parts comprised in the machine by which the pulley is swung upon centers, the pressure of the driving-dog brought to bear equally upon opposite arms of the pulley, and the cutting-tools arranged to act upon opposite sides of the pulley, so that in the operation of the machine the pulley suffers no strain from fastening-bolts, and is driven by a balanced pressure and turned by balanced action.

### *Description of the Accompanying Drawing.*

Figure 1 is a side elevation of my machine with the pulley and driving-dog in section. Fig. 2 is a perspective view of the revolving-table, on which the driving-dog is attached, as shown.

### *General Description.*

A is the bed-plate of the machine; B B', the side housings; C, the stationary top rail or brace; and D, the vertically-sliding rail. E is a stationary block, similar in construction to the tail-block of a lathe having a sliding center, *e*, operated by hand-wheel *e'*. This block is attached to the rail D. F is the revolving driving-table suitably connected by belting or otherwise to the driving mechanism of the machine, and having an interior aperture, *f*, either in itself or a stationary bush for the insertion of a center, *f'*, for the lower end of the mandrel G. The mandrel turns between the

centers *e f'* in a manner similar to those which are used to support work between the centers of a lathe, and is fitted snugly to the bored hub of the pulley H. The dog I which is used to drive the pulley is of the following construction: Its wings *i* are fitted with driving-studs J, secured each in one of the series of holes *i'*, the series being provided to enable the studs to drive different sizes of pulleys. The wings *i''* of the dog are secured loosely to the table by bolts K, which pass through elongated holes in the said wings, the slots permitting the dog to have a lateral movement, so as to allow the driving-studs J to adjust themselves to irregularities in the arms of the pulley, and thus press with equal pressure upon the opposite arms of the pulley for driving. The sliding saddles L carry two cutters, M M', which can be adjusted to any desired angle, so that both may be cutting at the same time, and one be forming one side of the crown of the pulley and the other the opposite side, as shown in Fig. 1; or both may be operating together with different depths of cut upon the same side of the crown. The tools have the cross-feed and down-feed peculiar to boring-mills.

### *Claim.*

The combination, in the usual or suitable frame-work of a pulley-turning machine, of revolving table F, tail-block E, self-adjusting driving-dog I J K, and adjustable cutters L M M', the parts being connected together and the whole operating substantially in the manner and for the purpose specified.

In testimony of which invention I hereunto set my hand.

G. A. GRAY, JR.

Witnesses:

CHAS. A. BAUER,  
W. N. GRAY.