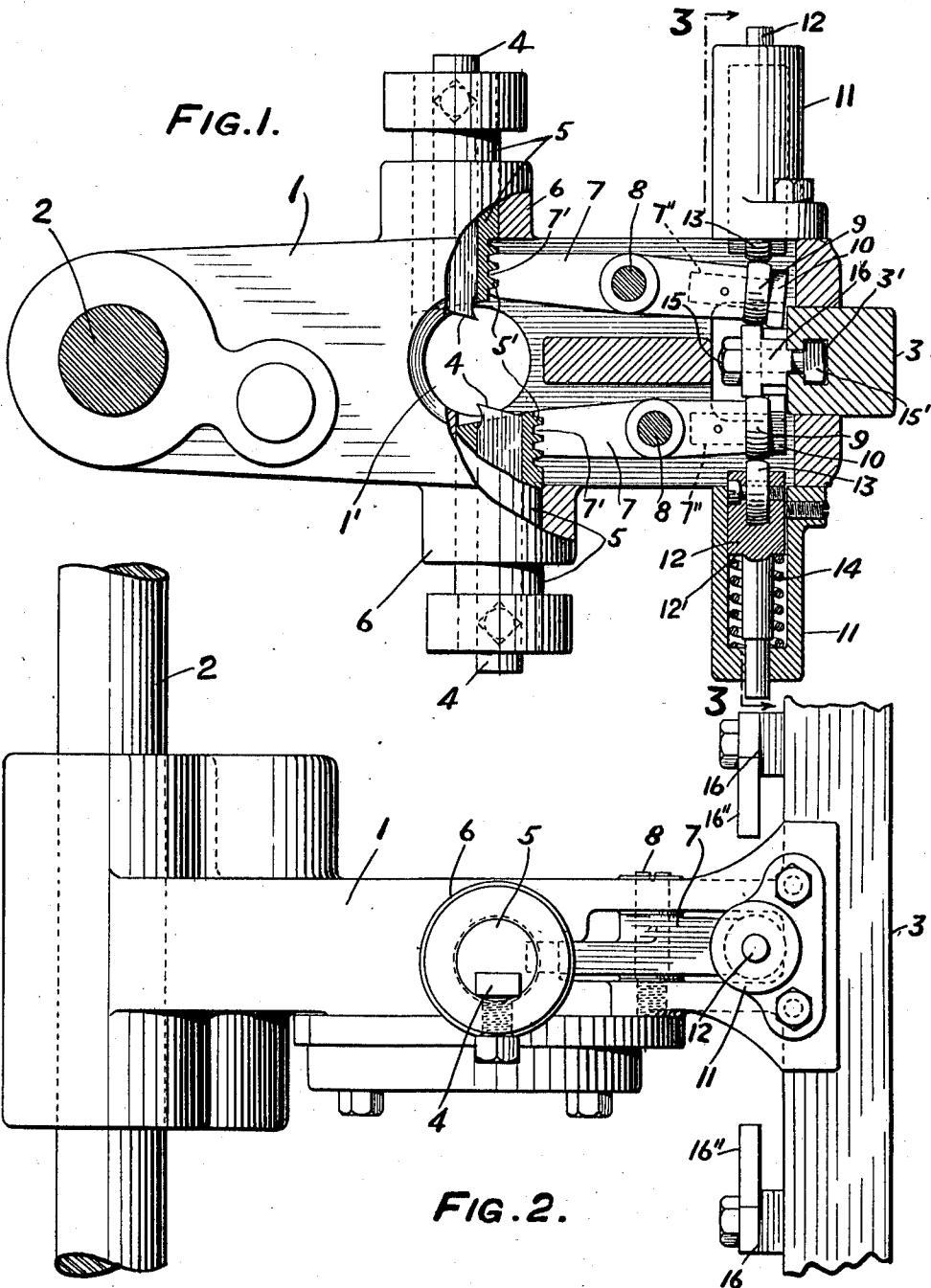


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TURNING MECHANISM.  
APPLICATION FILED SEPT. 14, 1910.

Patented Sept. 26, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

*Robert F. Scott*  
*John G. Wemyss*

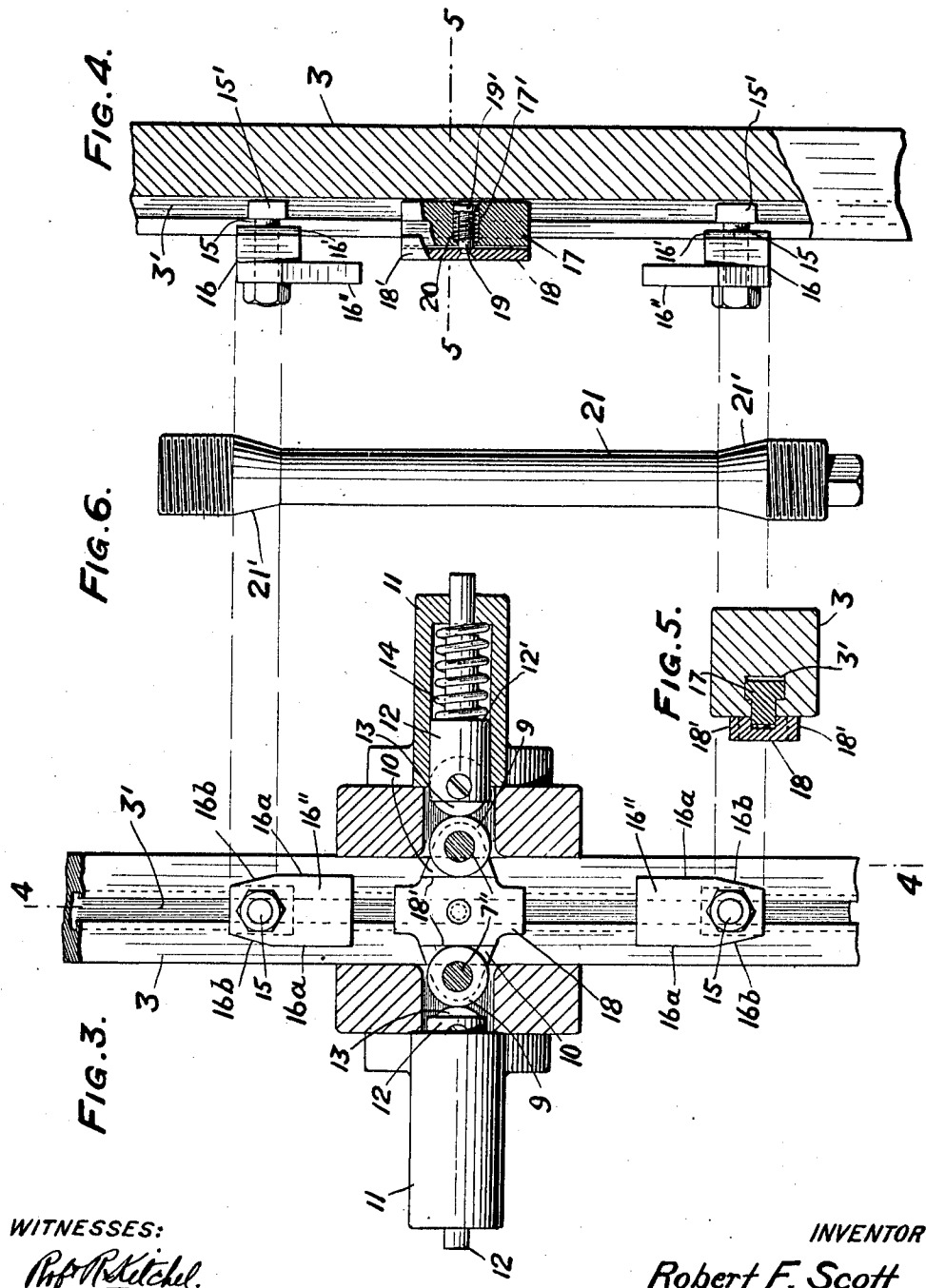
INVENTOR

*Robert F. Scott*  
BY *Charles N. Butler*  
ATTORNEY.

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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

ROBERT F. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO EDWIN HARRINGTON, SON & CO., INC., OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## TURNING MECHANISM.

1,004,088.

Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed September 14, 1910. Serial No. 581,957.

*To all whom it may concern:*

Be it known that I, ROBERT F. SCOTT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain Improvements in Turning Mechanism, of which the following is a specification.

This invention relates to turning mechanism for reducing the median sections of boiler staybolts or the like, such as is disclosed in Letters Patent of the United States No. 962197, granted June 21, 1910, to me jointly with Z. B. Coes and C. H. Thumliert.

My leading object is to provide improved means, readily adjusted, for guiding the actions of the reducing tools so that work of any length within the capacity of the machine can be reduced without requiring the use of special forms.

In the drawings, Figure 1 is a sectional plan view of mechanism embodying my invention; Fig. 2 is a side elevation thereof; Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 1; Fig. 4 is a sectional elevation taken on the line 4—4 of Fig. 3; Fig. 5 is a sectional elevation taken on the line 5—5 of Fig. 4; and Fig. 6 represents a staybolt which the apparatus is designed to form.

The mechanism, as illustrated in the drawings, comprises the head 1 which is movable along the guide rods 2 and 3. Tools 4 are set in sleeves 5 which are adapted to reciprocate in the bearings 6 formed on the head, the sleeves being provided with the teeth 5'. Levers 7, having teeth 7' which engage the teeth 5', are fulcrumed on bearings 8 which are supported by the head, the levers being provided with the studs 7'' having rollers 9 journaled thereon and the blocks or bearing members 10 fixed thereto.

Boxes 11, fixed on the head, guide the actions of plungers 12 which carry the rollers 13, the latter being held in engagement with the rollers 9 by springs 14 held in the boxes 11 and acting against the shoulders 12' of the plungers.

The rod 3 is provided with the undercut or T-shaped guide way 3' and bolts 15 have their heads 15' engaged within this slot so as to be movable along the rod. The bolts 15 pass through forming blocks 16 having reduced rectangular portions 16' (which are guided in the slot), parallel edges or bearing

surfaces 16<sup>a</sup> and inclined edges or bearing surfaces 16<sup>b</sup>. A block 17 of T-shaped cross section is engaged within the slot 3' so as to be movable between the blocks 16. A plate 18, provided with the parallel sides 18' which bear upon the rod 3 and engage the parallel sides of the block 17, is connected to the block by a stud 19, the stud having a head 19' which is movable in the socket 17' of the block and is pressed by a spring 20 disposed in the socket so as to effect frictional engagement between the block and rod.

It will be observed that the parallel sides of the plate 18 are in the planes of the parallel sides of the blocks 16, and that the block 17 with the plate 18 thereon is adapted to be moved under the projecting parts 16'' of the blocks 16.

In operation a blank which is to be reduced to the form of the bolt 21 is held and turned in the opening 1' of the head, which is simultaneously moved along the guide rods. At the beginning of the operation, the rollers 9 make contact with the inclined surfaces 16<sup>b</sup> of the upper forming block 16, by which the levers 7 are rocked and the tools 4 moved inwardly to turn the conical portion 21' at the top of the bolt. When the rollers 9 reach the parallel surfaces 16<sup>a</sup>, the tapered upper surface of the bolt is completed and the median portion of the blank is reduced to cylindrical form. The blocks 10 now engage the sides 18' of the plate 18, which is thus clamped and carried forward, holding the tools stationary in the head against the action of the plungers 12 until the cylindrical medial portion of the bolt is finished. The blocks 10 then leave the sides of the plate 18 and the rollers 9 pass over the inclined surfaces 16<sup>b</sup> of the lower forming device 16, whereby the tools are guided to form the lower tapered or conical surface 21' of the bolt.

When the head, at the end of the operation, is moved back to its initial position, the block 17 with the plate 18 thereon is carried back therewith by the reengagement of the blocks 10 with the plate 18.

It will be understood that by adjusting the positions of the blocks 16 bolts of various lengths can be turned.

Having described my invention, I claim:

1. A former comprising a stationary element and a sliding element, in combination

with a tool and mechanism whereby said former moves said tool, said mechanism having means for engaging and moving said sliding element.

5 2. A former comprising a stationary element having guiding surfaces and a reciprocating element having guiding surfaces, in combination with a tool, and mechanism whereby said former moves said tool, said  
10 mechanism having means movable over the guiding surfaces of said stationary element and means for frictionally engaging said reciprocating element.

3. The combination of a bar, a stationary  
15 former element having means whereby it is engaged in adjustable relation to said bar, a reciprocating former element having means whereby it is engaged to said bar, a tool, and mechanism whereby said former elements  
20 adjust the position of said tool, said mechanism comprising a device which is guided by said stationary former element and a device which is held by and moves said reciprocating former element.

25 4. The combination of a pair of stationary former elements, means whereby said former elements are held in adjustable relation to each other, a movable former element adapted to reciprocate between said stationary  
30 former elements, a movable head, tools carried by said head, and mechanism coacting with said former elements for adjusting the positions of said tools with relation to said head.

35 5. The combination of a movable head, a tool carried thereby, and a lever for operating said tool, with a guide bar, a stationary former element engaged to said bar and adapted for moving said lever, a movable  
40 former element engaged to said bar for

holding said lever and adapted to be reciprocated therewith, and a plunger for holding said lever in engagement with said former elements.

6. The combination of a movable head, 15 tools carried thereby, levers fulcrumed on said head, means whereby said levers engage said tools, a roller and block carried by each of said levers, a stationary forming device or devices adapted to be engaged by said 50 rollers, and a reciprocating forming device adapted to be engaged by said blocks.

7. The combination of a guiding device having an undercut slot therein, a forming  
55 element having means engaged in said slot for fixing it to said device, and a second forming element, said second forming element having a member engaged in said slot, a second member, and means comprising a  
60 spring whereby said members are connected together and held in frictional engagement with said device.

8. The combination of a guiding device having an undercut slot therein, a forming  
65 element having means engaged in said slot for fixing it to said device, said forming element having a projecting guiding part, and a second forming element adapted to move under said projecting part, said second  
70 forming element having means for holding it frictionally in movable relation to said device.

In witness whereof I have hereunto set my name this 13th day of September, 1910, in the presence of the subscribing witnesses. 75

ROBT. F. SCOTT.

Witnesses:

WM. J. JACKSON,  
JOHN C. HOWARD.