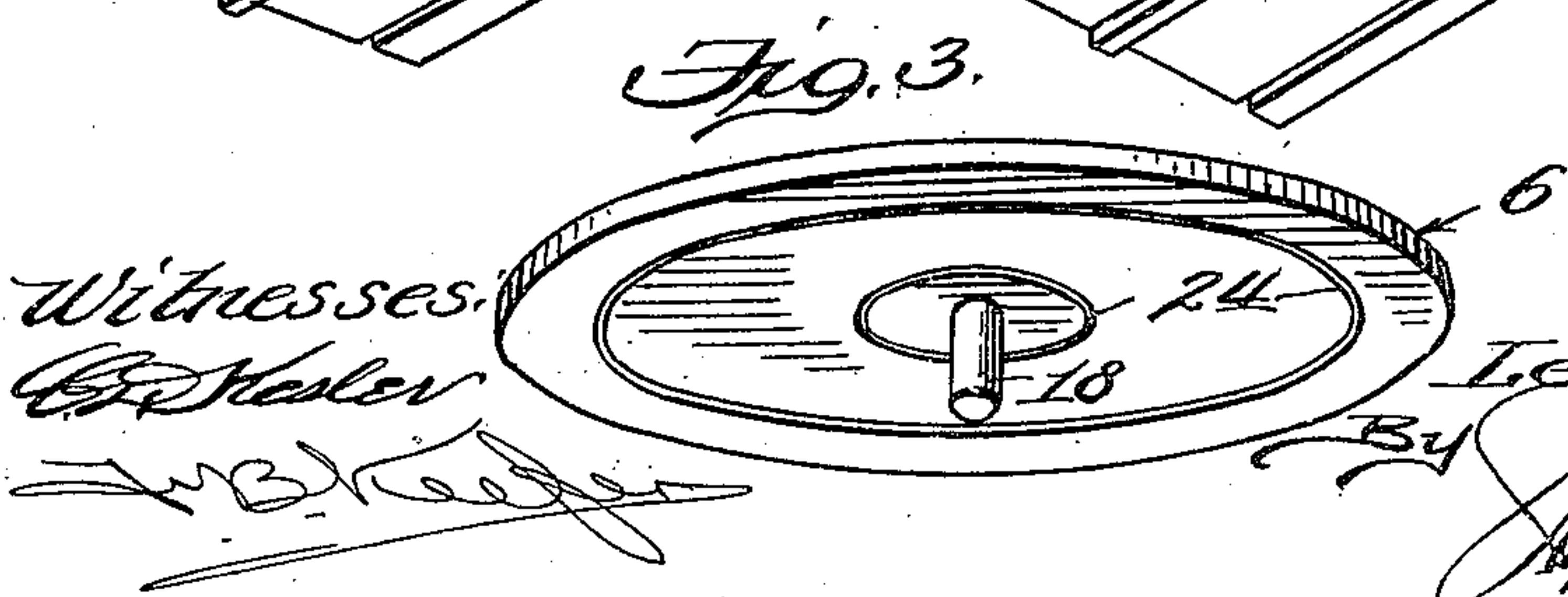
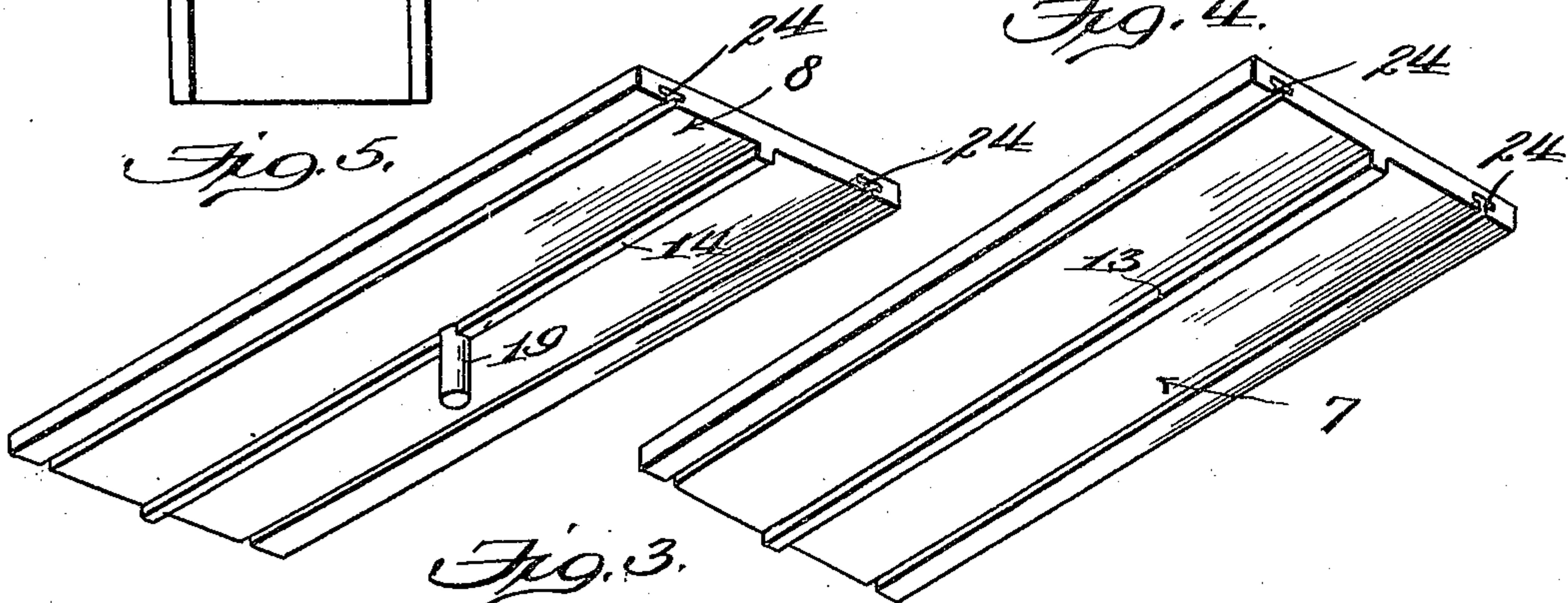
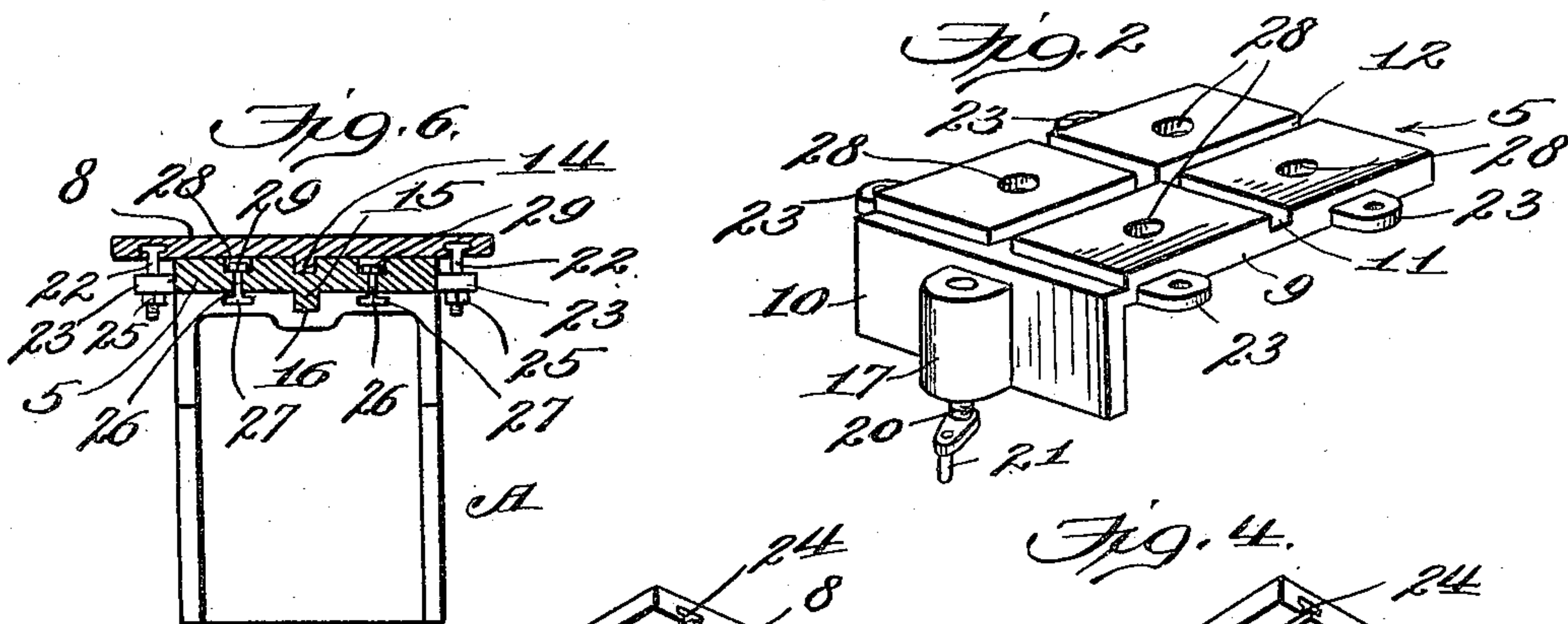
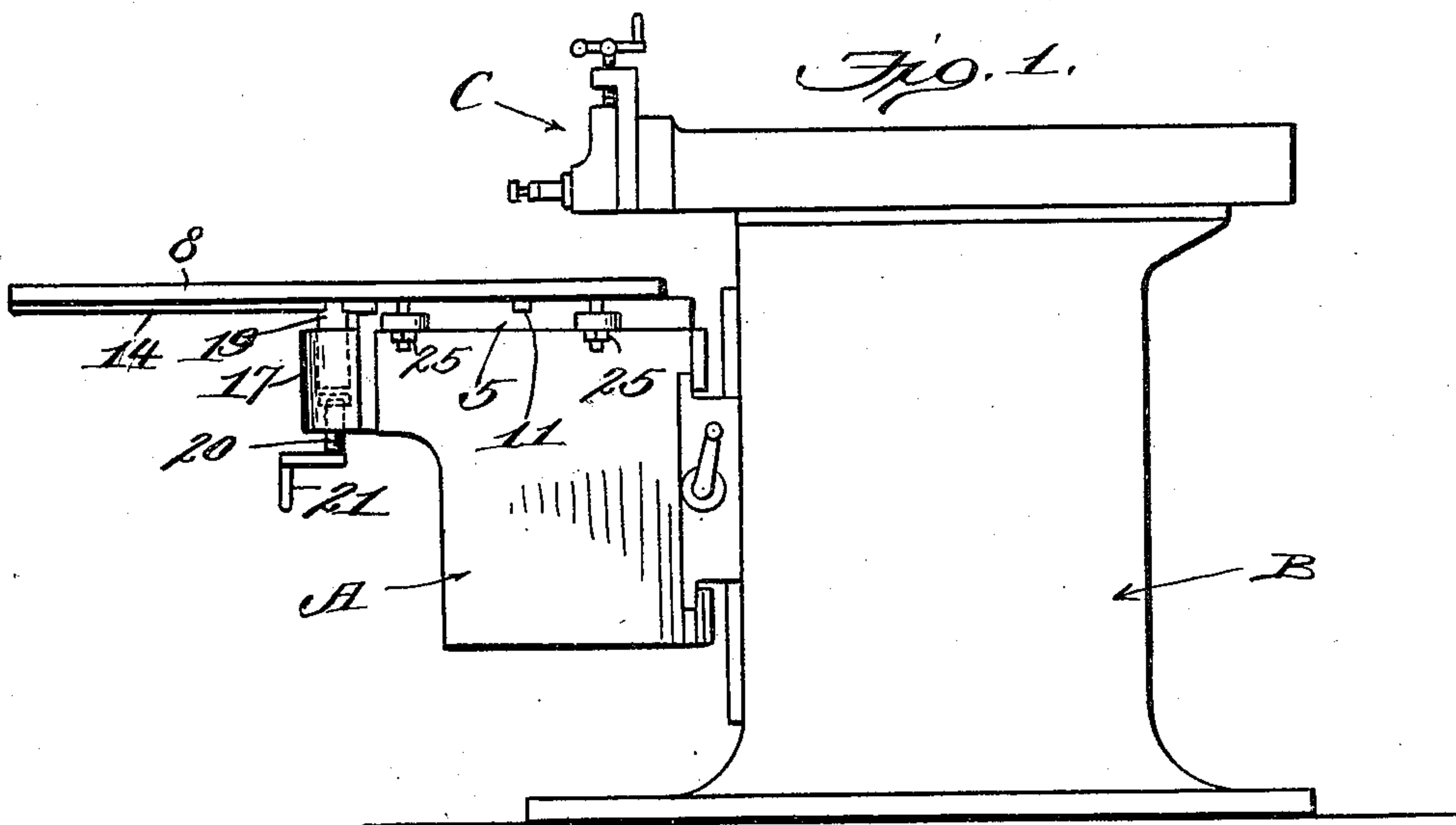


L. S. WHITEHEAD.
MILLING MACHINE AND THE LIKE.
APPLICATION FILED JUNE 4, 1910.

993,426.

Patented May 30, 1911.



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UNITED STATES PATENT OFFICE.

LEO S. WHITEHEAD, OF WHEELING, WEST VIRGINIA.

MILLING-MACHINE AND THE LIKE.

993,426.

Specification of Letters Patent.

Patented May 30, 1911.

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To all whom it may concern:

Be it known that I, LEO S. WHITEHEAD, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Milling-Machines and the Like, of which the following is a specification.

The present invention has reference to improvements in milling machines and the like, and it comprehends, broadly, the production of a machine of that general class having a materially increased capacity or range of work, this being effected by the provision of a specially constructed saddle with which a series of work supports of different types are adapted for interchangeable engagement, the arrangement being such that the table best suited for the character of the particular work may be readily connected to the saddle, and adjusted relative to the same, so as to require no subsequent resetting of the work.

A structural embodiment of the invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of the complete machine. Fig. 2 is a detail perspective view of the improved saddle. Fig. 3 is a similar view of the table shown in Fig. 1. Figs. 4 and 5 are perspective views of different forms of tables. Fig. 6 is a transverse sectional view of the bed and saddle, the latter having engaged therewith the table shown in Fig. 5.

Reference being had to said drawing, and to the characters marked thereon, A indicates in a general manner the adjustable bed of a milling, shaping or similar machine, B the standard with which the bed is connected, and C the cutting mechanism mounted upon the standard and overhanging bed A. These elements are, in the main, of conventional type, and hence require neither detailed illustration nor extended description.

Upon the upper face of the aforementioned bed A, there is adjustably mounted the saddle 5, in the particular construction of which the invention primarily resides. This element is designed to support the three work tables 6, 7 and 8, shown, respectively, in Figs. 3, 4 and 5, these tables being of different types and being adapted for interchangeable employment to suit the character or requirements of the particular work.

The saddle, therefore, is so constructed as to admit of the attachment of any one of these tables thereto, the tables being, in turn, adapted for adjustment upon said saddle and for retention in adjusted position. The provision of means for centering the tables during their adjustment is also necessary, as will be apparent. In the construction shown in Fig. 2, which is at present considered most advantageous, the saddle has a flat plate-like body 9 provided at its front end with a depending flange 10 arranged at right angles thereto. The upper face of the aforementioned body portion 9 has formed therein a transverse groove 11 and a longitudinal groove 12, these grooves bisecting each other as well as the corresponding side and end edges of said body, their bottoms being substantially flush with the upper edge wall of flange 10. They are designed to receive longitudinal tongues or ribs 13 and 14 formed, respectively, upon the under faces of the tables 7 and 8, whereby said tables are guided during adjustment, as hereinafter more fully explained. A similar construction is also provided for insuring the correct sliding adjustment of the saddle, the under face of which latter is formed with a longitudinal tongue 15 received in a longitudinal groove 16 formed in the upper face of the bed A. The tongues and grooves above referred to may have any suitable conformation. As regards the tables themselves, it may be stated that two are preferably rectangular in shape, and the third circular, one of the two rectangular tables, namely, the table 7, being arranged for adjustment transversely of the bed, and the other rectangular table 8 for longitudinal adjustment. Any one of these tables may be used, according to the particular character of the work, as will be understood, and since the dimensions of all of the tables are considerably greater than those of the bed, the range of the work is proportionately increased, such increase being independent of the range of adjustment of the saddle upon the bed, and of the latter itself. Thus it will be seen that all parts of the work may be treated without necessitating any re-setting, and the dimensions of the work or object may be much greater than those of the saddle. As regards the circular table 6, a carrier therefor is provided in the nature of a vertical bearing sleeve 17 formed upon flange 10, the bore of said sleeve receiving a depending axial pin or stud 18

connected to the said table. This sleeve is also designed to receive a similar pin or stud 19 formed midway between the ends of the rib 14 on table 8. With the sleeve there is
 5 associated a bolt 20 threaded in the lower portion of the bore thereof and provided with an operating handle 21, the upper end of said bolt contacting with the lower ends of the pins or studs 18 and 19.

10 Means are provided, as already stated, for retaining the tables in adjusted position. Such means may, as illustrated, advantageously comprise clamping bolts 22 movable through the perforations in a series of
 15 lugs 23 which project laterally from the side edges of the saddle body 9. The heads of these bolts are designed for reception in pairs of T-grooves 24 formed in the under faces of the tables. These grooves, in the
 20 case of the two rectangular tables 7 and 8, are arranged longitudinally and adjacent the side edges thereof; in table 6, said grooves are in the form of concentric circles, the bolts being turned in one position to
 25 permit their insertion therein, and subsequently turned at right angles to such position to effect their retention. At their lower ends, the bolts carry nuts 25 which may be tightened against the under faces of
 30 lugs 23.

From the foregoing, it will be apparent that after the proper table has been selected and connected to the saddle, the latter and the bed may be adjusted, and as the milling
 35 or other operation is continued, the position of the table itself may be varied periodically without requiring any re-setting of the work. Thus it is shown that an extremely wide range of adjustment is insured, and the
 40 capacity of the machine, in effect, increased. Where the table is mounted in the bearing sleeve, as is the case with the tables 6 and 8, it may be readily raised above the saddle, by turning the handle 21 in the proper direc-
 45 tion, after which it may be adjusted.

In connection with the adjustment of the saddle, it may be stated that the provision of retaining devices is contemplated, such devices being preferably similar to those
 50 associated with the tables and comprising bolts 26 having T-shaped heads which are received in correspondingly shaped longitudinal grooves 27 formed in the upper face of the bed A. The threaded upper ends of
 55 these bolts project into countersunk recesses 28 in the saddle and carry tightening nuts 29, as shown in Fig. 6.

I claim as my invention:

60 1. In a machine of the class described, the combination of a bed; a saddle adjustably

mounted on said bed and constituting a companion element thereto, one of said elements being provided with a groove, and the other with a tongue slidably fitting in said groove; means for retaining said saddle in adjusted position on said bed; a work-supporting table adjustably mounted on said saddle and provided with a pair of grooves; and a pair of bolts carried by said saddle and having their heads fitted
 65 in the grooves in said table for retaining the latter in adjusted position.

2. In a machine of the class described, the combination of a bed having a flat upper face; a saddle adjustably mounted on said
 75 bed and having a flat under face resting on the first mentioned face, said bed and saddle constituting companion elements, one of which is provided with a longitudinal groove, and the other with a longitudinal
 80 tongue slidably fitted therein; means for retaining said saddle in adjusted position on said bed; a work-supporting table adjustably mounted on said saddle and provided with a pair of grooves; perforated lugs carried
 85 by said saddle at opposite sides thereof and disposed directly beneath the grooves in said table; and clamping bolts movable through the perforations in said lugs and provided with heads received in said table
 90 grooves.

3. In a machine of the class described, the combination of a bed; a saddle mounted thereon; a work-supporting table carried by the saddle and mounted upon the same, said
 95 saddle and table constituting companion elements; means carried by one of said elements and arranged for engagement with the other element to retain said table in position upon said saddle; and means for ele-
 100 vating said table above said saddle.

4. In a machine of the class described, the combination of a bed; a saddle mounted thereon and provided with a bearing sleeve; a work-supporting table provided with a
 105 pin engaged in said sleeve, said table and saddle constituting companion elements; means carried by one of said elements, to retain said table in position upon said saddle; and a vertically-movable member lo-
 110 cated in said sleeve and engaged with said pin, for elevating said table above said saddle.

In testimony whereof I have hereunto set my hand in presence of two subscribing
 115 witnesses.

LEO S. WHITEHEAD.

Witnesses:

JOHN P. HOBENZ,
 E. BALZER.