

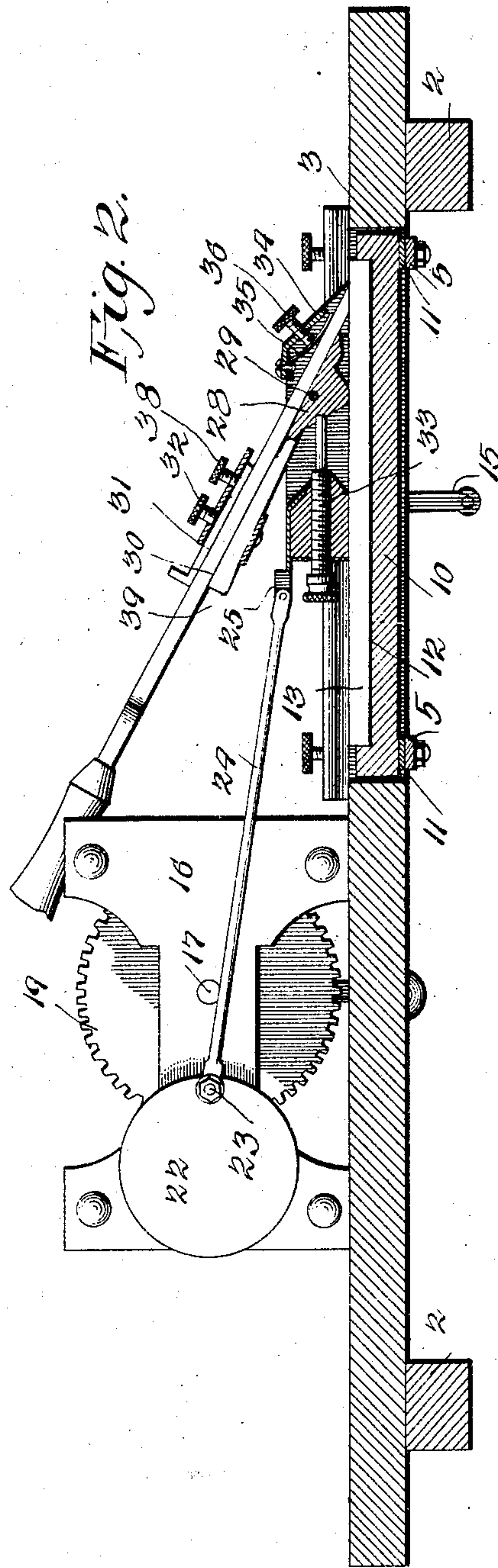
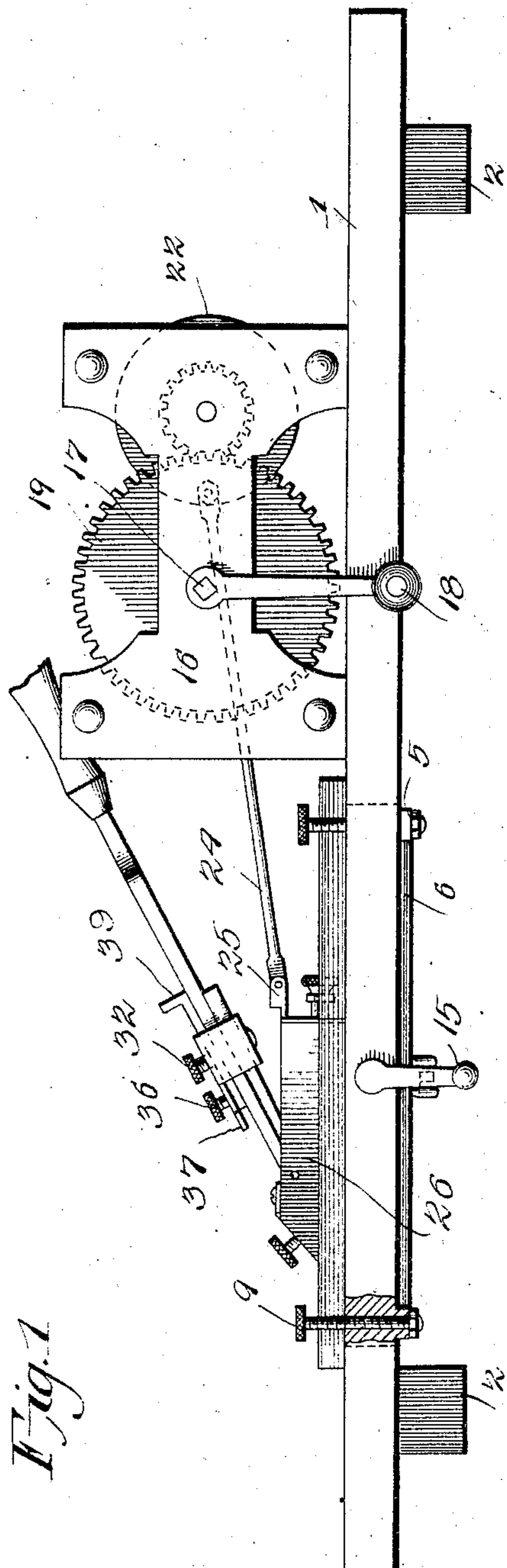
No. 785,593.

PATENTED MAR. 21, 1905.

W. M. CRAIG.
GRINDING MACHINE.

APPLICATION FILED JUNE 4, 1904.

2 SHEETS—SHEET 1.



Witnesses
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William M. Craig. ^{Inventor}

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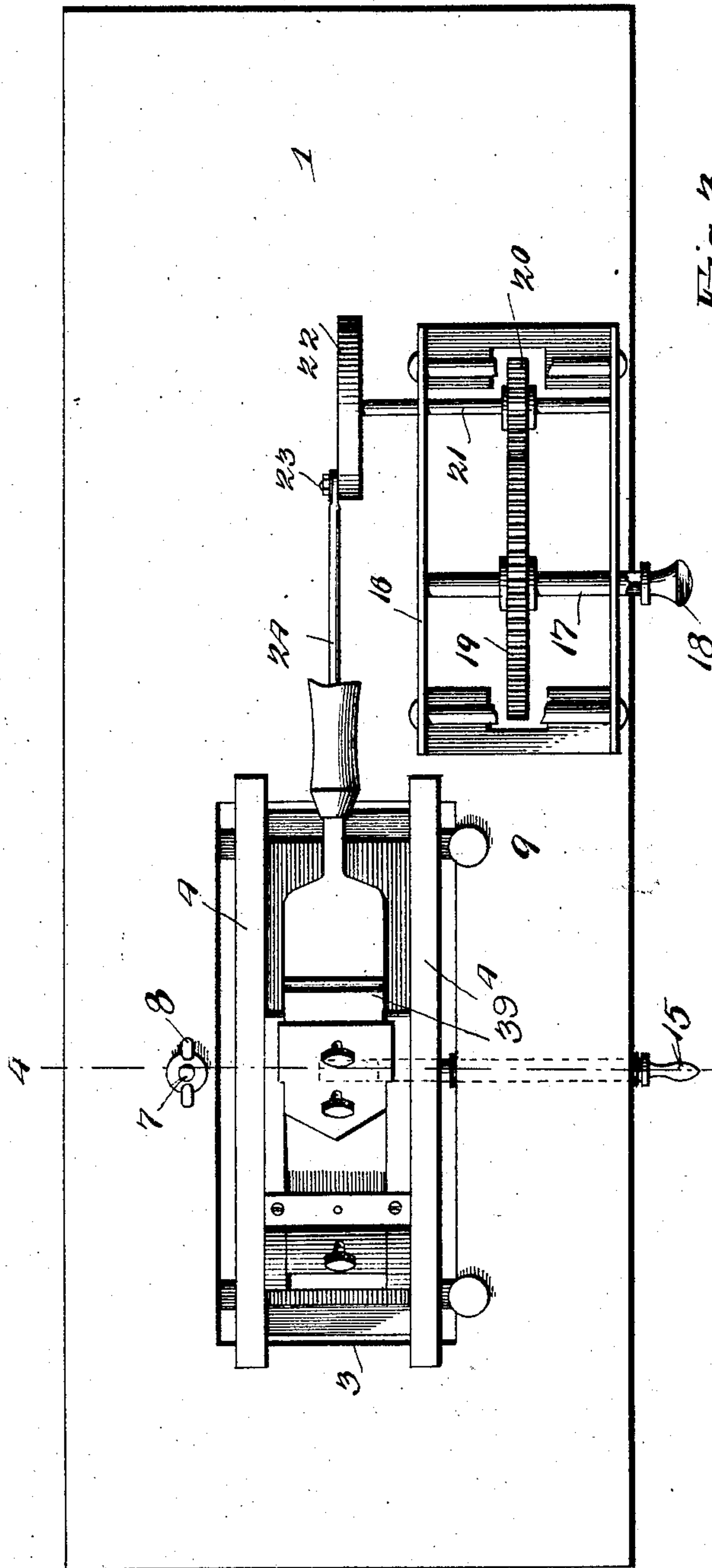


Fig. 3.

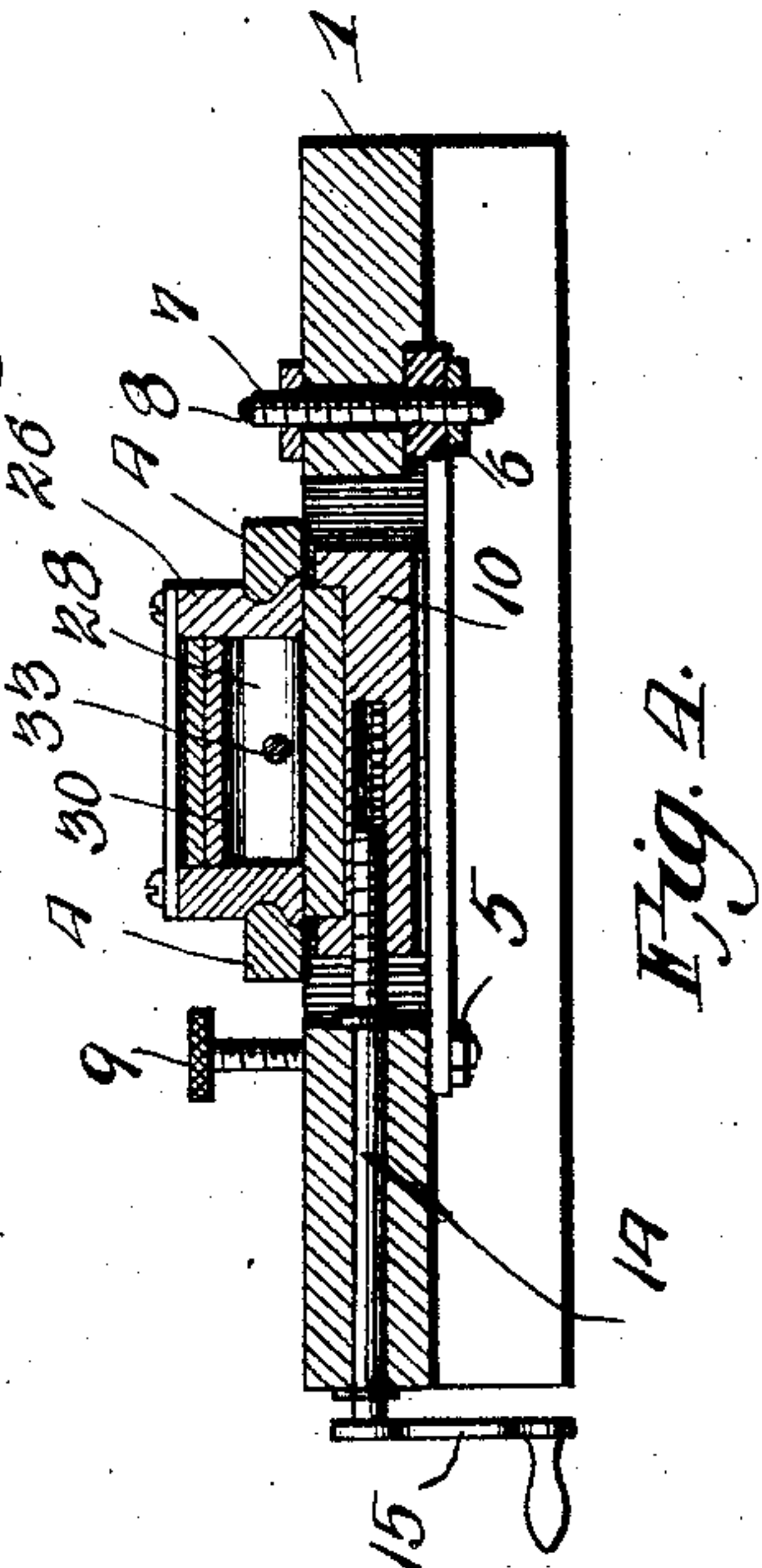


Fig. 4.

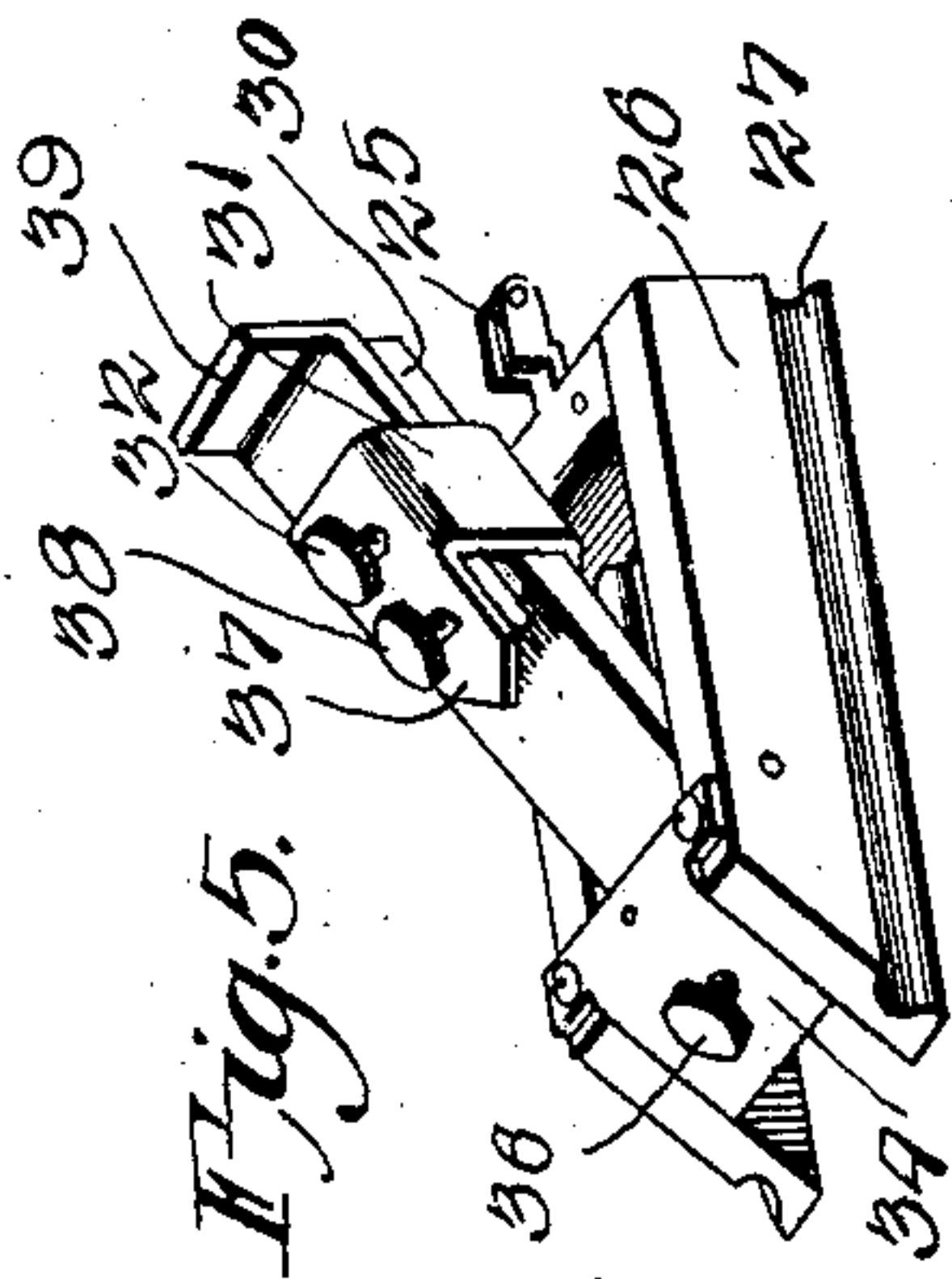


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM MARSHALL CRAIG, OF MARION, OHIO.

GRINDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 785,593, dated March 21, 1905.

Application filed June 4, 1904. Serial No. 211,186.

To all whom it may concern:

Be it known that I, WILLIAM MARSHALL CRAIG, a citizen of the United States, residing at Marion, in the county of Marion and State of Ohio, have invented new and useful Improvements in Grinding-Machines, of which the following is a specification.

My invention relates to new and useful improvements in metal-grinding machines, and it is particularly adapted for use in sharpening tools, such as chisels, and plane-blades.

The object of the invention is to provide a reciprocating carriage adapted to be driven by suitable mechanism provided therefor, and another object is to employ means whereby a tool may be held at any desired angle within the carriage.

A further object is to provide a sharpening-surface which may be adjusted vertically and laterally, so as to preserve a smooth face thereon.

With the above and other objects in view the invention consists of a bed having guide-strips thereon, which are located at opposite sides of an aperture in which is arranged a holder having a stone therein. This holder is adjustably supported by screws provided for that purpose and is also engaged by a laterally-extending adjusting-screw, whereby the holder may be moved laterally upon supporting-strips provided for it. A carriage is mounted between the guides and is adapted to travel over the stone, and this carriage receives reciprocating motion from the mechanism hereinbefore referred to. Arranged within the carriage is a pivoted supporting-block adapted to be adjusted to a desired angle by an adjusting-screw provided for that purpose, and means are employed whereby a tool may be firmly clamped upon the supporting-block and said block held against movement during the sharpening operation.

The invention also consists of the further novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, in which—

Figure 1 is a side elevation of the machine, and showing a tool in position therein, the

handle of the tool being broken away. Fig. 2 is a longitudinal section through the machine. Fig. 3 is a plan view of the machine. Fig. 4 is a section on line 4 4, Fig. 3, and Fig. 5 is a perspective view of the carriage of the machine.

Referring to the figures by numerals of reference, 1 is a bed mounted on suitable supports 2, and this bed has a longitudinally-extending aperture 3, above which are arranged parallel guide-strips 4. Arranged under the aperture 3 are cross-strips 5, which are connected at one end by a longitudinally-extending strip 6, and extending from the center of the strip 6 is a threaded stem 7, having a thumb-nut 8 thereon. This stem projects through the bed 1 adjacent the center of one side of aperture 3. Thumb-screws 9 extend through the bed 1 adjacent the opposite side of the aperture 3 and are swiveled within the free ends of the cross-strips 5. By rotating the thumb-screws 9 and the nut 8 the strips 5 and 6 can be moved from or toward the lower face of the bed 1. The cross-strips 5 extend across the aperture 3 adjacent its ends and support a holder 10, which is slidably mounted upon them and has wear-plates 11, which bear on the cross-strips 5. Holder 10 has a recess 12 in its upper face, in which is firmly seated a block 13 of stone or other grinding material, and one side of holder 10 is engaged by an adjusting-screw 14, which is swiveled within one side of the bed 1 and has a crank 15, whereby it may be readily rotated. The rotation of crank 15 will cause the block 10 to move laterally upon the cross-strips 5, and it is therefore obvious that said block and the stone 13 can be moved to any desired position within aperture 3.

Journalled within a frame 16, which is located on the bed 1, is a shaft 17, adapted to be rotated by means of a crank 18 or in any other suitable manner. A gear 19 is secured to and rotates with shaft 17 and meshes with a similar gear 20, secured to a shaft 21, which is journalled in the frame 16. This last-mentioned shaft has a fly-wheel 22 at one end, from which projects a wrist-pin 23. This pin engages a pitman 24, which is pivoted

at its other end between ears 25, projecting rearwardly from a carriage of peculiar construction. This carriage comprises side pieces 26, which are adapted to fit between the guide-strips 4 and are provided with longitudinally-extending grooves 27 for the reception of said guide-strips. A block 28 is pivoted between the side strips 26 and upon a pin 29, and this block has an arm 30 extending upward therefrom, to which is secured an angular sleeve 31, having a set-screw 32 projecting therethrough. An adjusting-screw 33 extends horizontally through one end of the carriage and bears upon the block 28 at a point below the pivot 29 thereof. A cross-strip 34 is arranged at the forward ends of the side strips 27 and has a clamping-plate 35 connected to the inner face thereof and which is contacted by a thumb-screw 36. A tongue 37 extends downward from the sleeve 31 and is provided with a thumb-screw 38, which is similar to the screw 32, before referred to.

When it is desired to sharpen a tool by means of the device herein described, the same is placed with its edge downward through the sleeve 31 and upon the arm 30 and block 28. A metal wear-plate 39 is then placed upon the tool and within the sleeve 31, so as to permit the thumb-screws 32 and 38 to bear thereon and clamp the wear-plate upon the tool. The adjusting-screw 33 is then rotated so as to swing the block 28 and its arm upon its pivot until the tool assumes the proper angle in relation to the stone 13. Plate 35 is then clamped upon the forward face of the tool by means of the screw 36. The stone can be raised into contact with the tool by means of the screws 7 and 9. By rotating the gears 19 and 20 by means of crank 18 pitman 24 is reciprocated and causes the carriage to slide backward and forward between the guides 4, thereby causing the tool to slide on the stone 13. An extremely rapid movement of the tool can be produced in this manner, and as the surface of the stone is worn thereby the same can be moved laterally within the aperture 3 by rotating the crank 15 and its screw 14. It will be seen that by means of this device tools can be quickly placed in this position and sharpened and a perfectly straight edge is produced. By continually moving the stone laterally within the aperture 3 the surface thereof is kept smooth, so that the same may be used for a considerable length of time.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. In a device of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage mounted above said surface, means upon the carriage for holding a tool at a desired inclination to the grinding-surface, and mechanism for operating the carriage.

2. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage movably mounted above said surface, an adjustable tool-supporting block within the carriage, means for holding a tool thereon, and operating mechanism connected to the carriage.

3. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface thereon; of a carriage movably mounted above said surface, a tool-supporting block pivoted within the carriage, means for holding the block in adjusted position, tool-holding devices connected to the block, and means for operating the carriage.

4. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface; of a carriage movably mounted above the surface, a pivoted block therein, means for securing a tool thereon, locking devices for holding the block and tool against movement, and mechanism for reciprocating the carriage upon the bed.

5. In a machine of the character described, the combination with a bed having a laterally-adjustable grinding-surface; of a carriage movably mounted thereabove, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

6. In a machine of the character described, the combination with a bed having a vertically and laterally adjustable grinding-surface; of a carriage movably mounted in the bed, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

7. In a machine of the character described, the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted therebetween, adjustable means for securing a tool within the carriage, and mechanism for operating the carriage.

8. In a machine of the character described, the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted therebetween, a block pivoted within the carriage, means for locking the block against movement, securing devices for holding a tool upon the block, and mechanism for operating the carriage.

9. In a machine of the character described,

the combination with a bed having an adjustable grinding-surface; of guide-strips adjacent said surface, a carriage slidably mounted between the strips, a block pivoted within the carriage, an adjusting device bearing upon one face of the block, an arm extending from the block, a sleeve thereon, tool-clamping devices within the sleeve and upon the carriage adjacent the block, and mechanism for reciprocating the carriage.

10. In a machine of the character described, a carriage comprising side strips, a block pivoted therebetween, an adjusting de-

vice bearing upon one face of the block and engaging the carriage, an arm extending from the block, a tool-receiving sleeve thereon, a clamping-plate adjacent the block and within the carriage, and clamping devices adjacent said plate and within the sleeve.

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

WILLIAM MARSHALL CRAIG.

Witnesses:

WILLIAM F. PASTERS,
ELEANOR L. WALSH.