

No. 701,564.

Patented June 3, 1902.

B. M. W. HANSON & F. W. GORDON.

LATHE FEED.

(Application filed Mar. 13, 1902.)

(No Model.)

2 Sheets—Sheet 1.

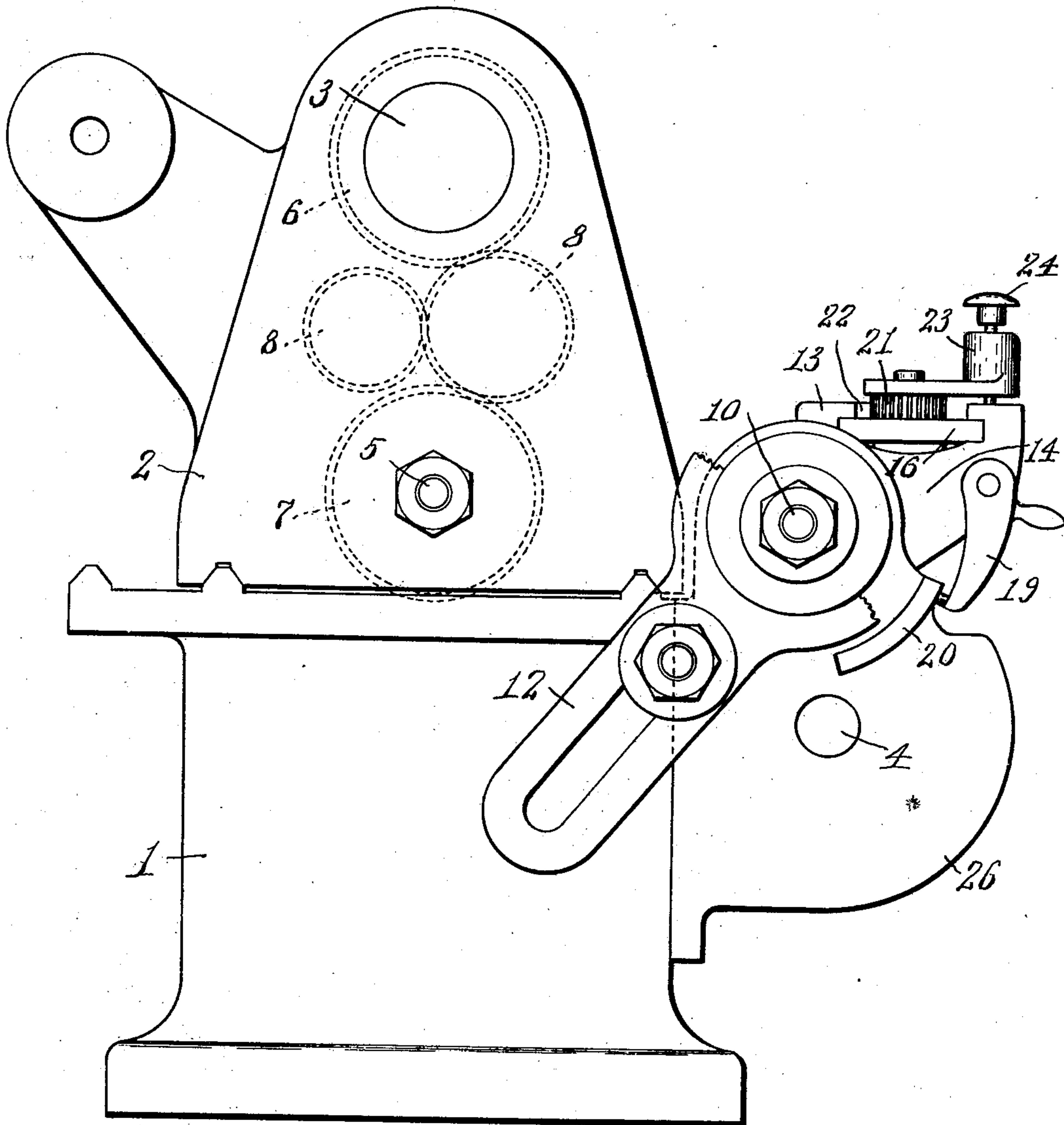


FIG. 1.

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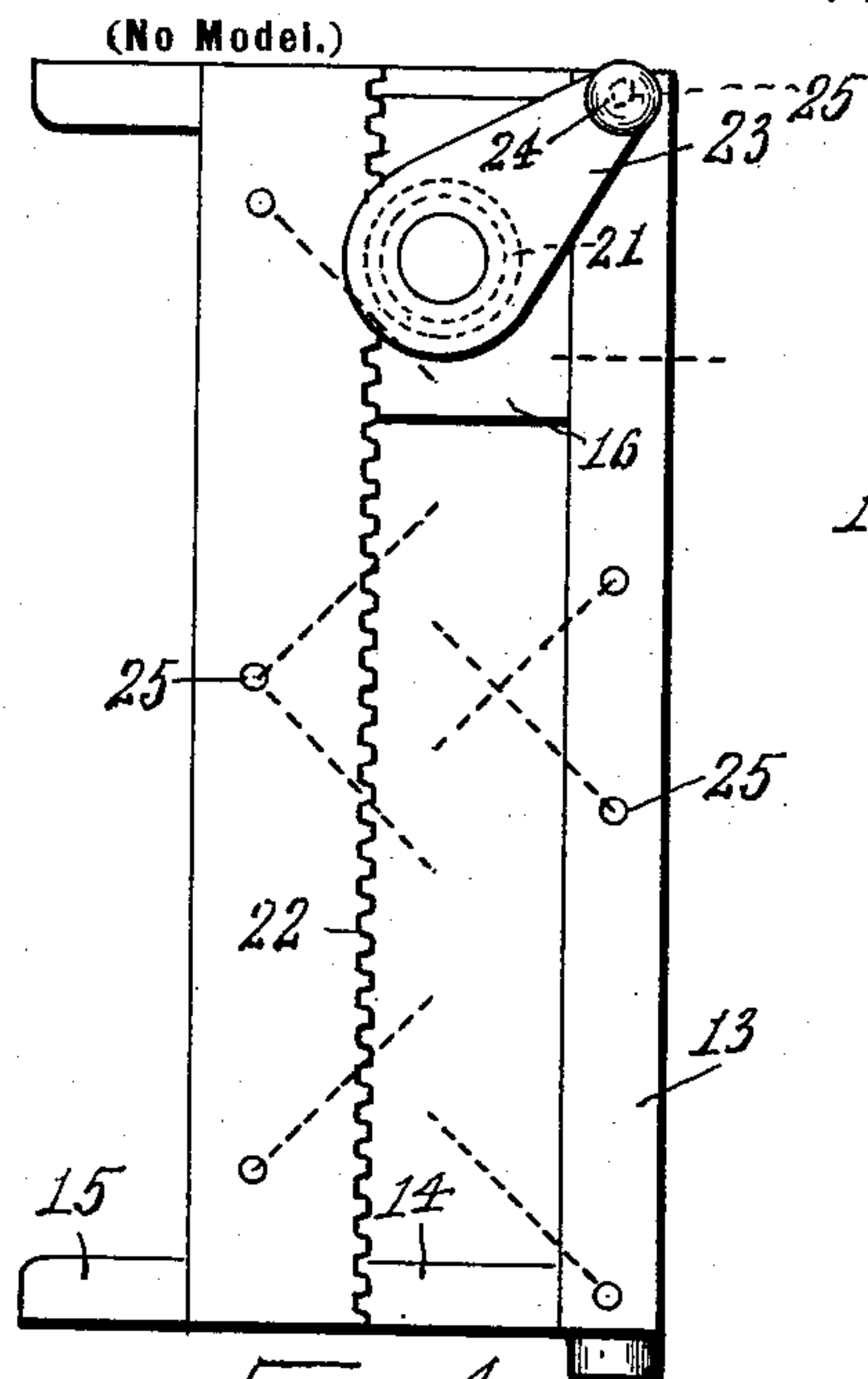


FIG. 4.

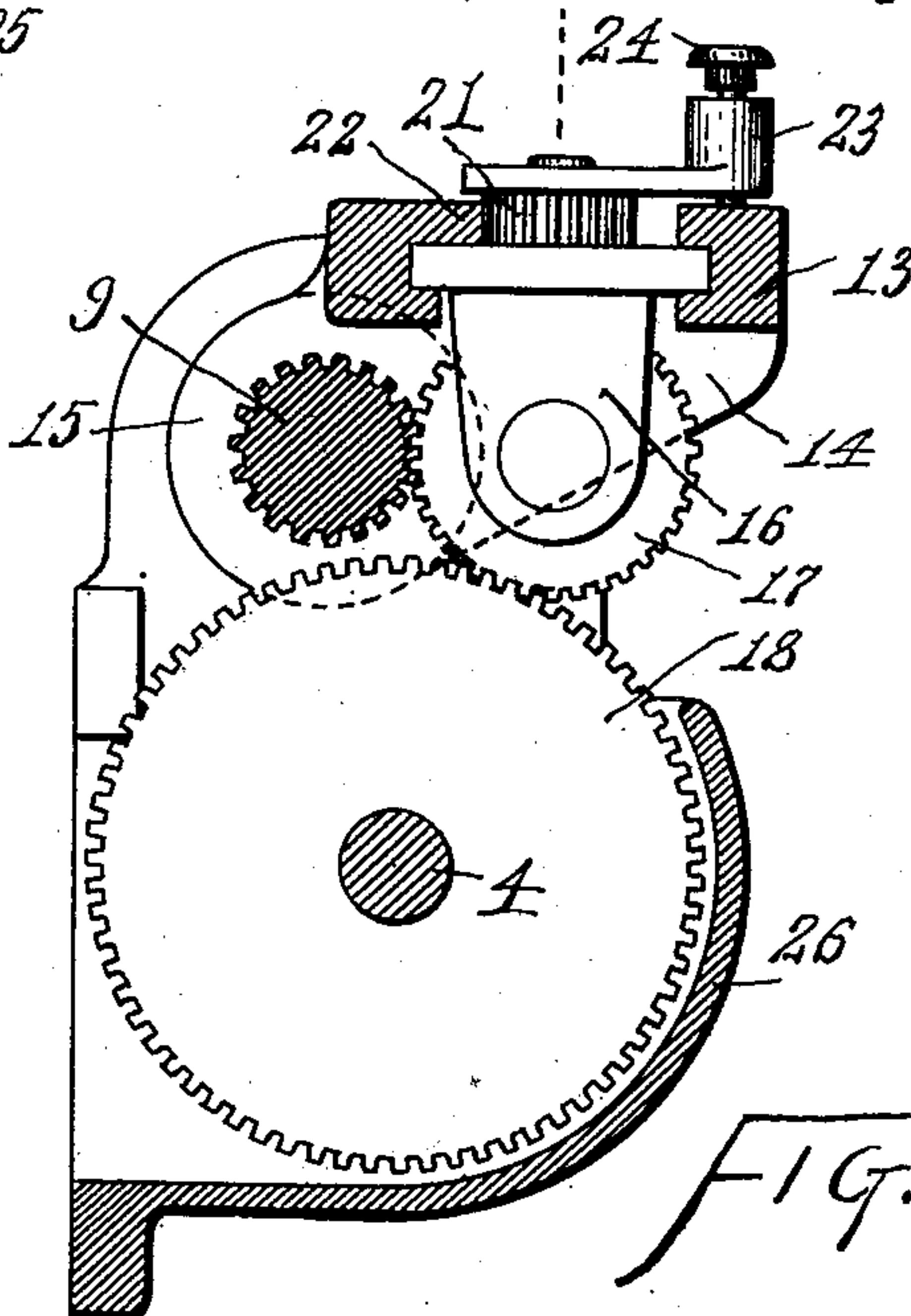


FIG. 2.

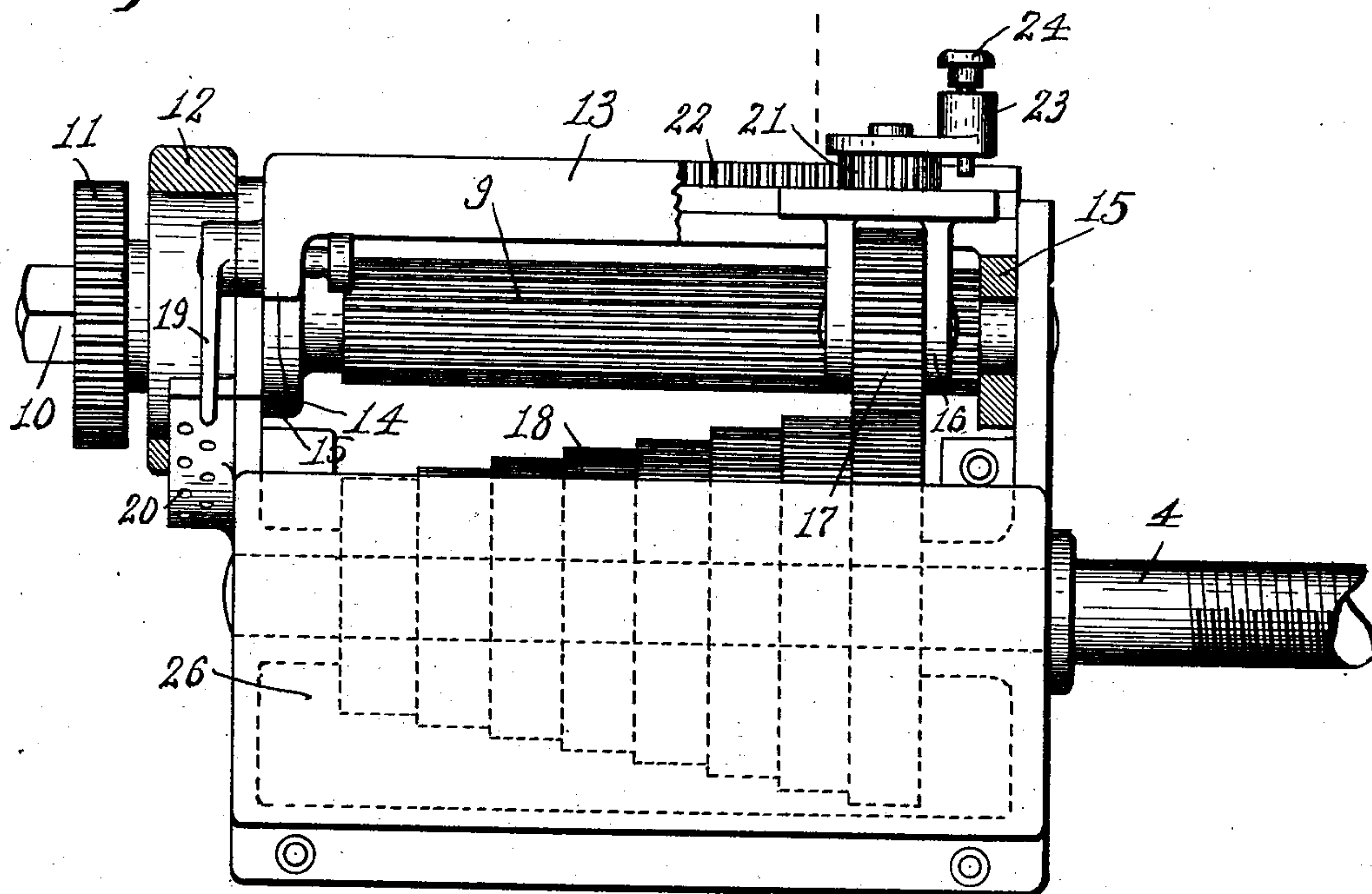


FIG. 3.

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UNITED STATES PATENT OFFICE.

BENGT M. W. HANSON AND FREDERICK W. GORDON, OF HARTFORD, CONNECTICUT, ASSIGNORS TO PRATT & WHITNEY COMPANY, OF HARTFORD, CONNECTICUT.

LATHE-FEED.

SPECIFICATION forming part of Letters Patent No. 701,564, dated June 3, 1902.

Application filed March 13, 1902. Serial No. 98,065. (No model.)

To all whom it may concern:

Be it known that we, BENGT M. W. HANSON, a citizen of Sweden, and FREDERICK W. GORDON, a citizen of the United States, both residing at Hartford, Hartford county, Connecticut, have invented certain new and useful Improvements in Lathe-Feeds, of which the following is a specification.

This invention pertaining to improvements in lathe-feeds will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is an end elevation of a lathe provided with feed mechanism exemplifying our present invention, the change-gears being omitted and part of the quadrant being broken away; Fig. 2, a vertical transverse section of the main parts of the mechanism; Fig. 3, a front elevation of the main parts of the mechanism, certain details appearing in vertical section; and Fig. 4, a plan of the tumbler.

In the drawings, 1 indicates the bed of the lathe; 2, the head-stock; 3, the arbor; 4, the lead-screw; 5, the change-gear stud; 6, the arbor-feed pinion; 7, the driven gear of the stud; 8, the reversing-gears in the head-stock, all the parts thus far referred to being constructed as usual except that while the projecting end of change-gear stud 5 is adapted to receive the ordinary change-gears such is not the case with the end of the lead-screw 4; 9, a long pinion supported by the lathe-bed parallel with the lead-screw; 10, the head end of this pinion, the same being adapted to receive the change-gear in line with a change-gear on change-gear stud 5; 11, a change-gear thus mounted on the end of the long pinion; 12, an ordinary "quadrant," so called, for adjustably carrying such intermediate gear as may be employed between change-gears on the change-gear stud and the end of the long pinion; 13, a longitudinal guideway parallel with long pinion 9 and extending its whole length and having the form of a rocking frame; 14, arms at the end of this guideway extending inwardly toward the journals of the long pinion; 15, bearings on these arms, with their common axis coincident with the axis of long pinion 9, the guideway thus rocking

transversely upon the axis of the long pinion; 16, a carriage arranged to slide lengthwise in guideway 13; 17, an idle gear journaled in carriage 16 and constantly meshing with the long pinion regardless of the position of the carriage in the guideway; 18, a series of gears of diverse size fast on the lead-screw, a longitudinal adjustment of the carriage 16 in conjunction with the angular adjustment of the guideway permitting idle gear 17 to be put into gear with any selected one of gears 18; 19, a finger-latch pivoted to the guideway; 20, a fixed segment of detent-holes adapted to be selectively engaged by latch 19 and hold the guideway fixedly in adjusted angular position after idle gear 17 is properly engaged with one of gears 18; 21, a pinion journaled on carriage 16; 22, a longitudinal rack carried by guideway 13 and engaged by pinion 21, so that the turning of the pinion will cause it and the carriage to traverse the guideway; 23, a crank fast with pinion 21; 24, a detent-pin carried by this crank; 25, two longitudinal series of detent-holes in the guideway, adapted to be selectively engaged by detent-pin 24, and 26 a casing secured against the front of the lathe-bed near its head end and serving to inclose gears 18 and furnish bearings for the lead-screw and long pinion and to support the guideway.

The usual change-gears give motion to the long pinion from change-gear stud 5, and the change-gears as interchangeable elements need not be employed if the variety of gears in group 18 is sufficient to satisfy the speed ratios desired for the lead-screw. By releasing detent-pin 24 and turning crank 23 and putting the detent-pin to a properly-selected one of detent-holes 25 the carriage can be traversed along in the guideway and idle gear 17 brought to the plane of any selected one of gears 18. By releasing latch 19 and then rocking the guideway and then engaging the latch with the proper one of its detent-holes 20 the idle pinion can be brought properly into gear with that one of gears 18 with which it has been brought into line.

While the device has been illustrated and described as a lathe-feed, it is nevertheless

to be understood, as will be obvious, that the invention will well lend itself to numerous other situations.

We claim as our invention—

- 5 1. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse sizes, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of
10 said series of gears, and means for securing the rocking guideway and the carriage in position.
2. The combination, substantially as set forth, of a shaft provided with a series of
20 gears of diverse sizes, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of
25 said series of gears, gearing connecting the carriage and guideway and serving to shift the carriage along the guideway, and means for securing the rocking guideway and the carriage in position.
3. The combination, substantially as set forth, of a shaft provided with a series of
35 gears of diverse sizes, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of
40 said series of gears, a rack supported by the guideway, a pinion journaled on the carriage and engaging the rack, a crank for turning the pinion, and means for locking the rocking guideway and the carriage in adjusted position.
4. The combination, substantially as set

forth, of a shaft provided with a series of
gears of diverse sizes, a pinion disposed parallel with said shaft and having a length equal to that of said series of gears, a guideway disposed parallel to said pinion and arranged to rock upon the axis of the pinion, a carriage
55 mounted to slide in the guideway, a gear mounted in the carriage and engaging said long pinion and adapted to engage any of said series of gears, a rack supported by the guideway, a pinion journaled on the carriage
60 and engaging said rack, a crank for turning said pinion, a detent-pin carried by said crank and adapted to engage selective detent-holes in the guideway, and means for locking the rocking guideway in adjusted position. 65

5. The combination, substantially as set forth, of a shaft provided with a series of gears of diverse sizes, a second shaft mounted parallel therewith, a pinion upon said second shaft, a guideway disposed parallel with
70 and arranged to rock upon the axis of said second shaft, a carriage mounted to slide in said guideway, an idle gear mounted in said carriage and geared to said second shaft and adapted to engage any of the gears of said series of gears, and means for locking said rocking guideway and the carriage in adjusted position. 75

6. The combination, substantially as set forth, of a casing, a shaft journaled therein
80 and provided with a series of gears of diverse sizes inclosed by said casing, a pinion mounted in said casing parallel with said shaft and having a length equal to said series of gears, a guideway disposed parallel with said pinion and mounted to rock upon the axis thereof, a carriage arranged to slide in said guideway, an idle gear mounted in said carriage and engaging said pinion and adapted to engage any one of said series of gears, and means
85 for locking the rocking guideway and the carriage in adjusted position. 90

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Witnesses:

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