J. Griggs.

Wood Screw.

No. 29,373. Patented Jul. 31, 1860.

Fig. 4. Fig. 2.

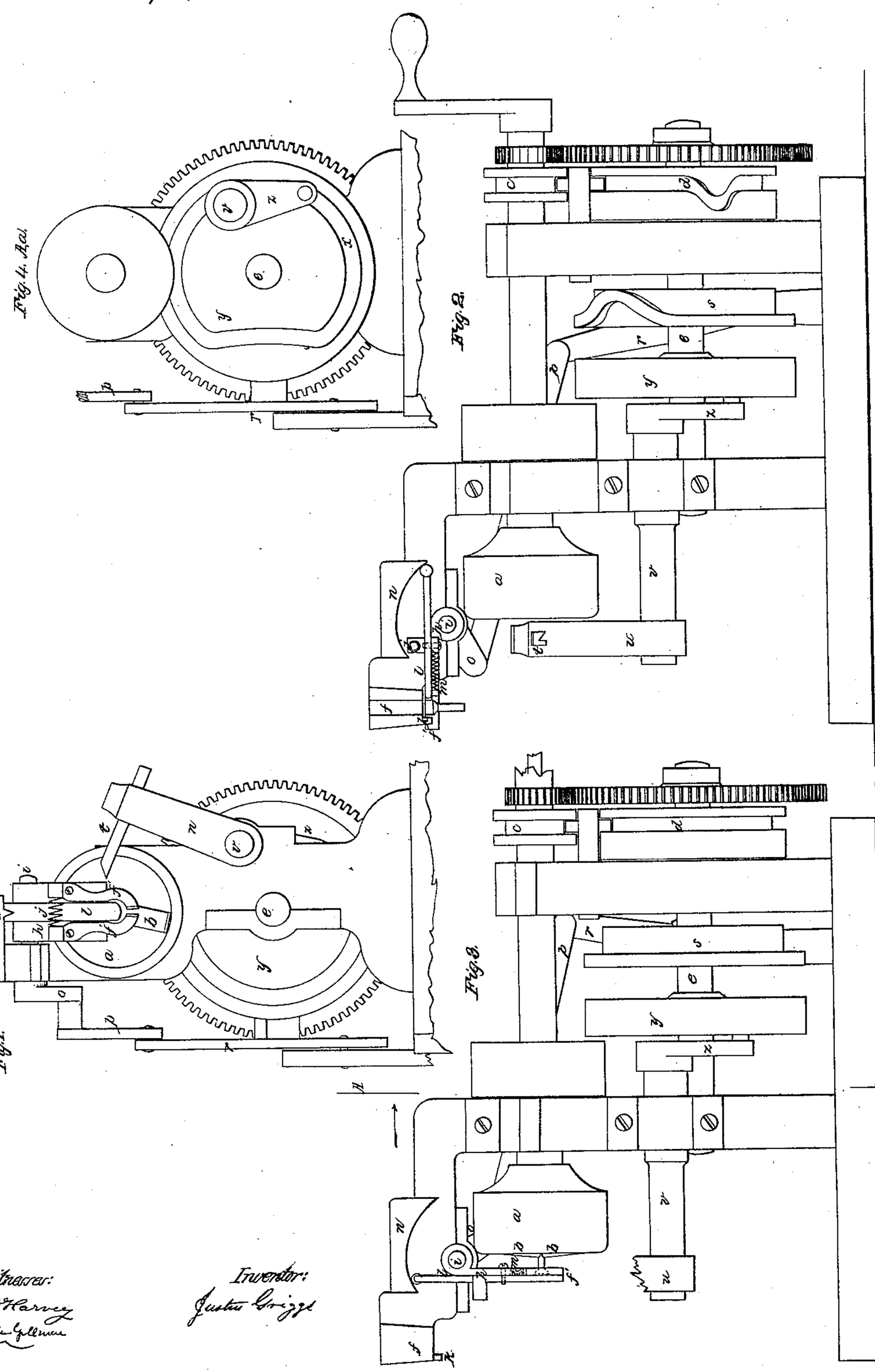

Fig. 1. Fig. 3.

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JUSTUS GRIGGS, OF UTICA, NEW YORK.

IMPROVED MACHINE FOR MAKING SCREWS.

Specification forming part of Letters Patent No. **29,373**, dated July 31, 1860.

To all whom it may concern:

Be it known that I, JUSTUS GRIGGS, of Utica, in the State of New York, have invented a new and useful Improvement in Machinery for Making Wood-Screws; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an end elevation; Fig. 2, a side elevation with the transferring-fingers in a horizontal position and with the feeding-tube and transferring-fingers in section. Fig. 3 is another elevation with the transferring-fingers in a vertical position, and Fig 4, a vertical section taken at the line A *a* of Fig. 3.

The same letters indicate like parts in all the figures.

My said invention relates to machinery for presenting and inserting screw-blanks into the gripping-jaws, by which they are to be held and rotated during the operation of suitable machinery, whether for shaving nicking, or reshaving the heads; but in the accompanying drawings it is represented as applied to machinery for shaving the heads.

In the accompanying drawings, *a* represents the usual mandrel and gripping-jaws of a machine for shaving the heads of screw-blanks. The jaws *b* are mounted in the head of the mandrel in the usual manner, and are operated to grip and liberate the screw-blank in the usual manner by a rod inside the mandrel, to which they are linked, the rear end of the said rod being connected with a collar *c* on the mandrel, which is made to slide back and forth by a cam *d* on the cam-shaft *e*. It is not deemed necessary to give a minute description and representation of this mechanism, as it is well known to persons versed in this branch of the arts. The screw-blanks from any suitable feeder are presented to and descend point foremost in a vertical tube *f*, and from this tube they enter one by one between a pair of spring-fingers *f' f'*, attached to and carried by an arm *h* on a rocking-shaft *i*. A spring *j* is interposed between the arms of the fingers, which by its tension tends constantly to close the fingers to make them grip the shank of the screw-blank gently; but as they are thrown up in a horizontal position, as in Fig. 2, they are forced open by a wedge *k* on the lower end of the tube *f*. While the fingers are so open the shank of the screw-blank from the tube enters between them and is stopped by the head. The fingers are then vibrated from a horizontal to a vertical position by the rocking motion of the arm *h* on the rock-shaft *i*, to be presently described, and as the fingers leave the wedge *k* they are closed by the tension of the spring *j* with sufficient force to hold the screw-blank during the operation of transferring and inserting the end of the shank into the gripping-jaws on the mandrel *a*.

On the face of the arm *h* and between the levers of the fingers there is a head-gage plate *l*, adapted to slide thereon and over the gripping portion of the fingers, as represented. By means of a spring *m* this plate is drawn toward the rocking-shaft *i* to uncover the gripping portion of the fingers which receive the screw-blank; but as the fingers are vibrated from the horizontal to the vertical position the gage-plate *l* is forced down over the head of the blank, and this is effected by its upper end coming in contact with the curved face of a stationary cam *n*, placed above the rock-shaft. Now, as this operation is completed before the shank of the screw-blank is gripped by the jaws on the mandrel, any resistance which the blank may receive as it is being inserted, whether by the partial gripping of the jaws on the mandrel or by its point coming in contact with a spring-stop in the mandrel or from any other cause, the inner face of the plate *l* forms a gage beyond which the head of the blank cannot be forced back, and as the arm *h* is rocked by a positive motion the series of blanks will all be inserted into and gripped by the jaws on the mandrel at the same distance from the outer face of the head. In this way whatever operation is to be performed on the heads of the screw-blanks the tool or tools employed for the purpose will always find the head of the screw-blank in the required position, however the shanks may vary in length. The rock-shaft *i* carries a crank *o* at one end, which is connected by a jointed rod *p* with a lever *r*, that receives a vibratory movement from a fillet-cam *s* on the cam-shaft, and in this way the required rocking motion is imparted to the shaft *i* to vibrate the arm *h* with the trans-

ferring-fingers from a horizontal to a vertical position and back again.

The tool for shaving the head is represented at *t* in a tool-post *u*, attached to a rock-shaft *v*, which is vibrated by a cam-groove *x* in the face of a cam-wheel *y* on the cam-shaft, which said cam-groove acts on an arm *z* on the rock-shaft to move the cutter in and out.

Although I have described the gage-plate as sliding in the direction of the radius of the arm *h*, and have specified its movements as being imparted in one direction by a fixed cam and in the opposite direction by a spring, I do not wish to be understood as limiting my claim of invention to such mode of application, as these may be greatly varied without changing the principle or character of my said invention—as, for instance, it may be made to slide on and off laterally, or it may be hung on a fulcrum-pin and vibrated thereon, and the motions may be imparted by a mechanism operating positively in both directions; or, it may be forced outward by a spring or by gravity, and forced back as the figures approach the feeding-tube *f* by an inclined projection coming in contact with the end of the tube. These several modes in which I have contemplated the application of the principle of my invention will indicate to the skillful mechanician the great variety of changes which may be made in the mode of application.

What I claim as my invention, and desire to secure by Letters Patent, is—

The employment of a movable gage-plate, substantially as described, in combination with the transferring-fingers, substantially as described, for gaging the screw-blanks by the head when the blanks are inserted in the gripping-jaws, as set forth.

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Witnesses:
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