(No Model.)

4 Sheets—Sheet 1.

J. W. SEE.

SCREW CUTTING LATHE.

No. 267,026. Patented Nov. 7, 1882.

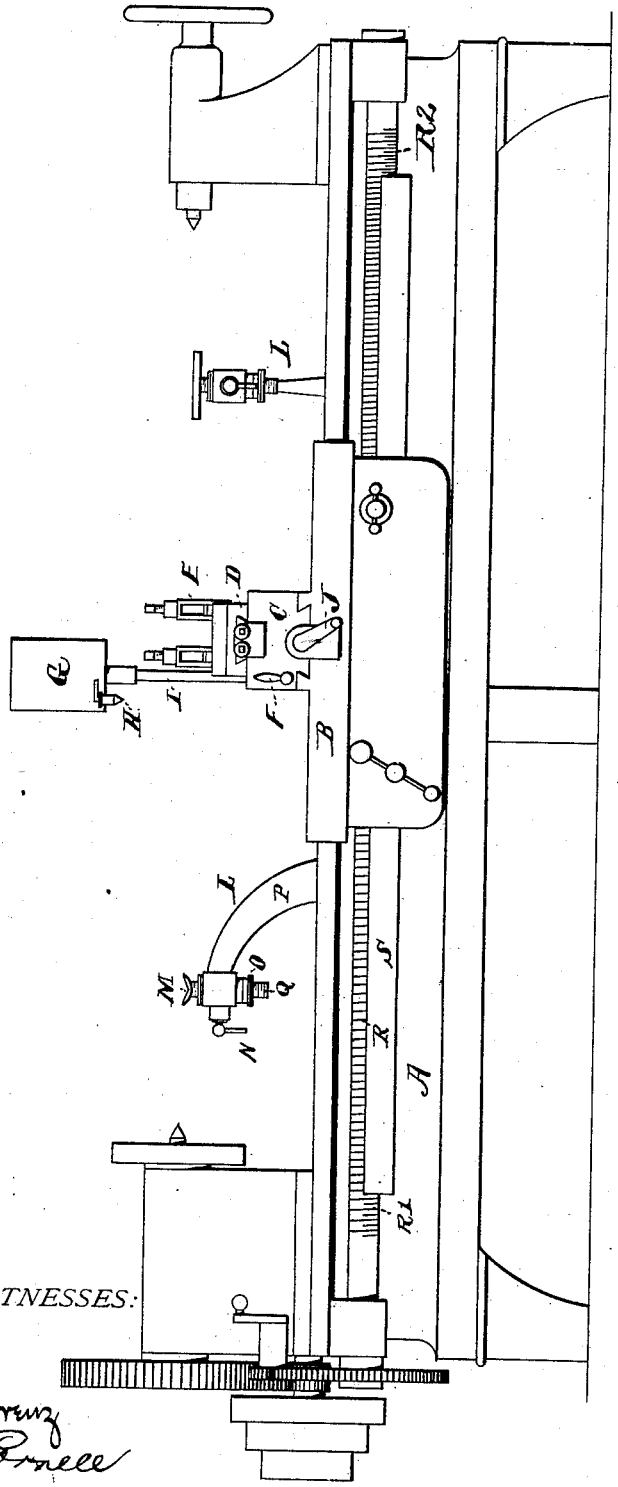


Fig 1.

WITNESSES:

John Lorenz

C. F. Burnell

James W. See

INVENTOR

(No Model.) 4 Sheets—Sheet 2.

J. W. SEE.

SCREW CUTTING LATHE.

No. 267,026. Patented Nov. 7, 1882.

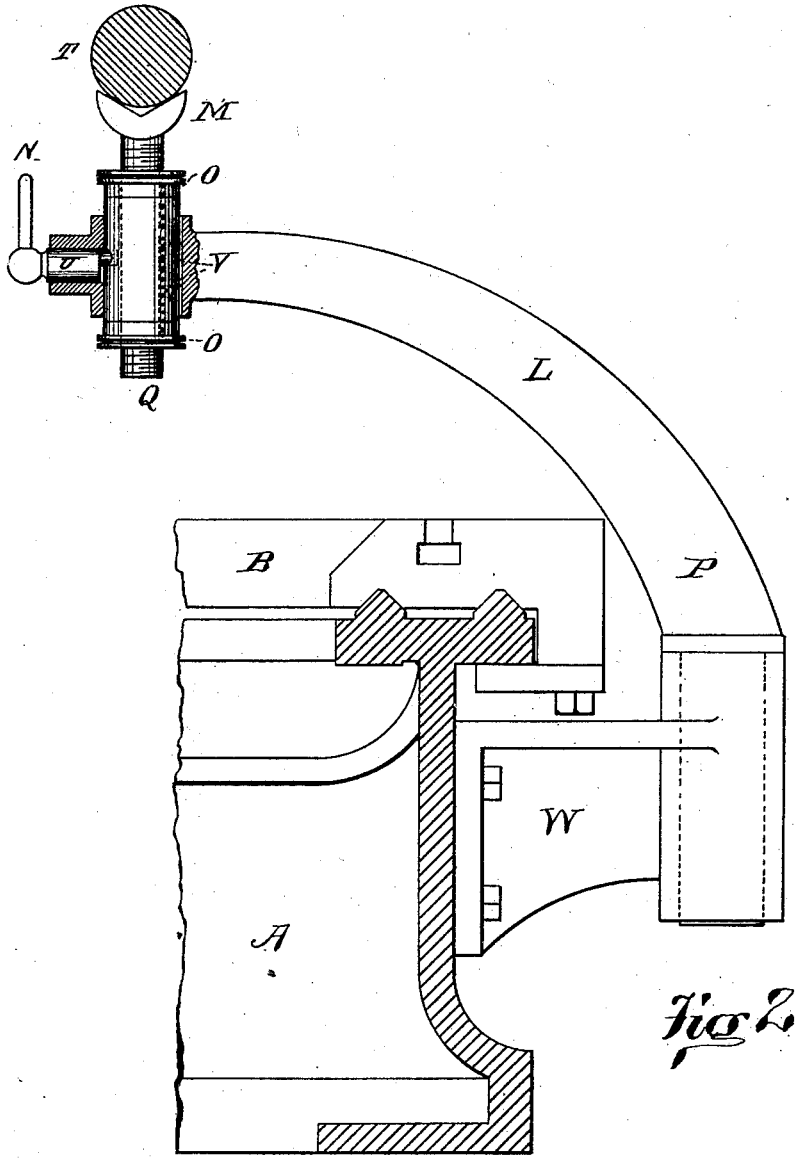


Fig 2.

WITNESSES:

John Lorenz

James W. See INVENTOR

(No Model.) 4 Sheets—Sheet 3.

J. W. SEE.

SCREW CUTTING LATHE.

No. 267,026. Patented Nov. 7, 1882.

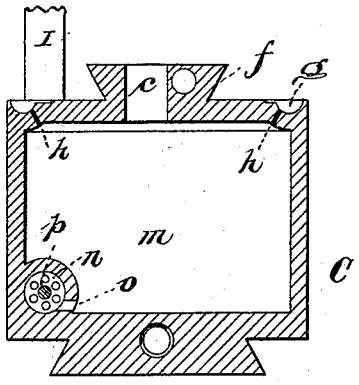


Fig 3

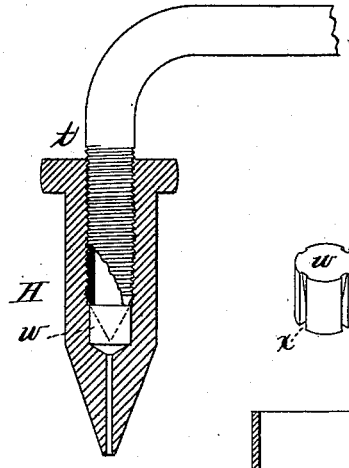
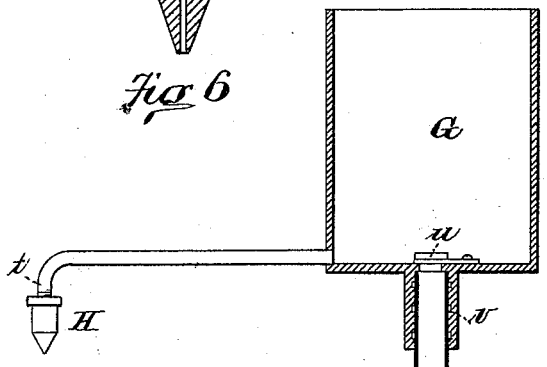


Fig 6

Fig 7



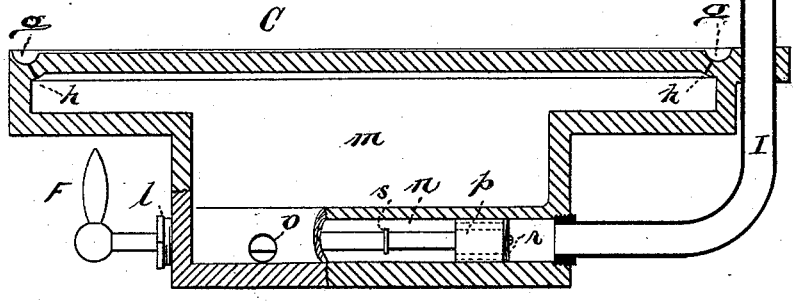


Fig 8

WITNESSES:

John Dorsey

O. Connell

James W. See INVENTOR

(No Model.) 4 Sheets—Sheet 4.

J. W. SEE.

SCREW CUTTING LATHE.

No. 267,026. Patented Nov. 7, 1882.

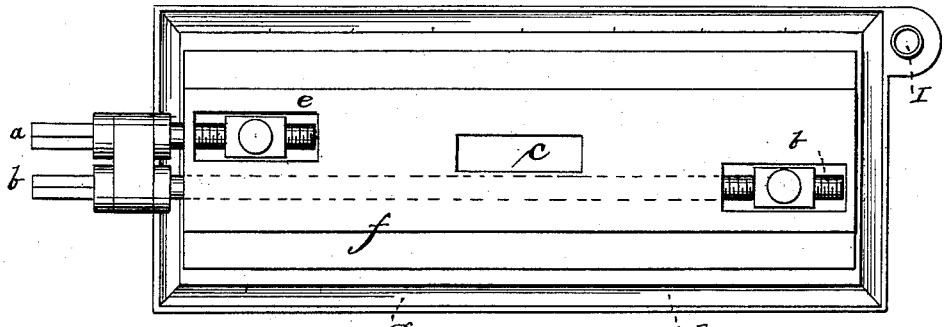


Fig 4

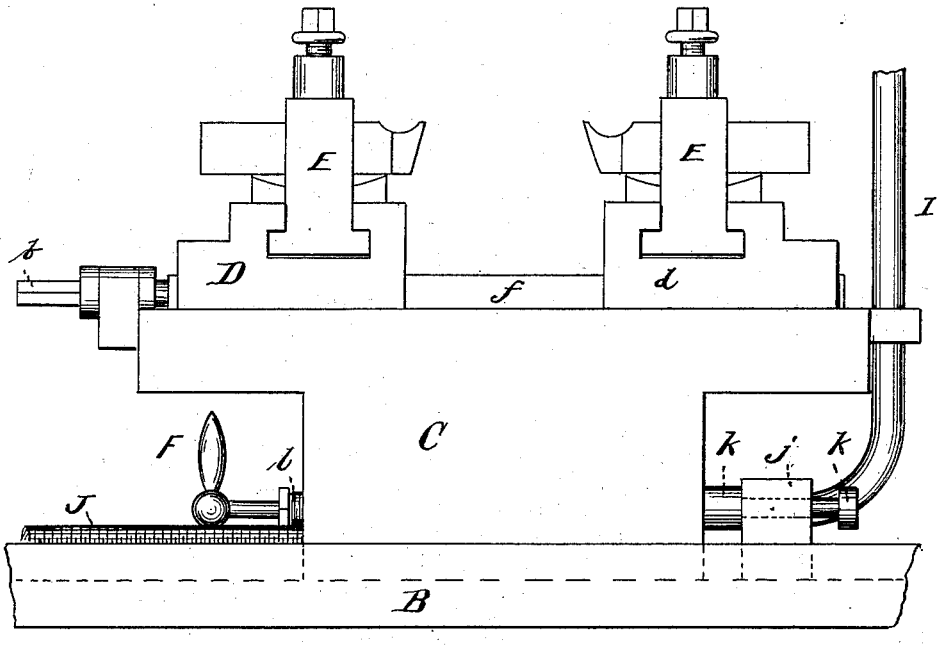


Fig 5

WITNESSES:
John Lorenz
C. F. Connell

James N. See INVENTOR

UNITED STATES PATENT OFFICE.

JAMES W. SEE, OF HAMILTON, OHIO, ASSIGNOR TO THE MILES TOOL WORKS, OF SAME PLACE.

SCREW-CUTTING LATHE.

SPECIFICATION forming part of Letters Patent No. 267,026, dated November 7, 1882.

Application filed May 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. SEE, of Hamilton, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Screw-Cutting Lathes, of which the following is a specification.

This invention pertains to lathes for cutting long screws; and it relates to the arrangement of the feed-screw, to the construction of the duplex tool-rest, to the apparatus for supplying liquid to the tools, and to a novel arrangement of intermediate rests to sustain the work.

In the accompanying drawings, Figure 1 is a front elevation of a lathe embodying my improvements. Fig. 2 is a transverse section of part of the lathe-bed, showing the construction of the swinging rests. Fig. 3 is a transverse vertical section of the main tool-block; Fig. 4, a plan of the same; Fig. 5, a side elevation of the tool-rest; Fig. 6, a vertical section of the water-cock; Fig. 7, a perspective view of the water cock disk, and Fig. 8 a vertical section of the main tool-block.

In Fig. 1, R is the lead-screw, supported in the usual gutter, S. In cutting very long screws there is considerable torsion of the work. As the cutting-tool progresses the twisted work behind it untwists, and this untwisting slightly increases the pitch of the thread which has been cut. The effect of torsion is as the length of the pieces. Hence a thread of a constant pitch cut upon a bar with a torsion lessening toward the driven end will result in a thread whose pitch decreases toward the driven end. The pitch will coincide with the leading-screw only at a point where there is no torsion of the work. I remedy this matter somewhat by constructing the lead-screw with a thread increasing in pitch as it progresses, and I arrange this lead-screw with its fine-pitch end farthest away from the driving end of the lathe. Thus in Fig. 1 the lead-screw R has a pitch of thread finer at R^2 than at R'. In the production of this lead-screw it is cut, as usual, in a lathe, and then set with its fine end toward the tail of the lathe.

In Fig. 1, L and L are intermediate rests, arranged to support the work at various points and to be easily swung out of the way to permit the carriage to pass. They swing in sockets back of the lathe, and may be easily removed from the sockets and placed in other sockets in different positions along the length of the lathe. Fig. 2 shows the construction of these rests. A curved crane-like arm, P, is vertically pivoted in a socket, W, fixed to the back of the lathe-bed, and is provided at its upper end with a V-shaped bearing, M, to support the work. The bearing M has a threaded shank, Q, which, in connection with the nuts O, permits the bearing to be adjusted vertically to suit different diameters of work. The bearing M is supported in a sleeve, V, which is adapted to slide vertically in the end of the arm and be quickly raised or lowered by the cam-lever N or other suitable device, so that in swinging the arm from under the work the sides of the bearing M will clear. An arrangement whereby the passage of the carriage automatically operates the swing-rests is reserved as the subject of another patent. The rest is duplex in character, arranged to cut on both the forward and backward motions, and two tools may, if desired, be used during each cut.

B is the lathe-carriage; C, a cross-sliding block, and J the usual cross-screw. As seen in Fig. 5, a stop, *j*, is fixed to the saddle, and a double-collared stop-stud, K K, is fixed in the block C to operate in connection with this standard. The effect of this double-stop device is to limit the motion of the block C. The cross-screw J can thus only move the block C a slight distance—about an inch, or enough to withdraw the cutting-tools entirely from the thread being cut.

The tool-posts E are carried in secondary tool-blocks, D and *d*, as shown, they being adjustable for depth of cut by the screws *a* and *b*, both being, as shown, accesssible from the front.

In operation the cross-screw J is used at each reverse of the lathe-motion to move the block C the full limit allowed by the stop *j*, and the advance of the tools for an increased depth of cut is effected by the screws *a* and *b*.

Suitable forms of follow-rests are of course to be secured to the carriage.

The main block C is hollow and forms a water-tank, *m*. A gutter, *g*, around its top, catches the water dripping from the tools and drains it through holes *h* into the tank *m*. A

pipe, I, attached to the tank *m*, carries the water-cup G, from which the water flows through cock H to the tools. In the tank *m* is fixed a pump having a handle, F. This pump transfers the water from the tank *m* to the cup G. The cup G is arranged to hold no more than the tank *m* will hold, whereby the tank *m* can never be overflowed. The cup G is replenished from the tank *m* from time to time and wastage made up by pouring into the cup. *u* is the check-valve for the pump. The cup G has a bottom hub, *v*, fitted to turn on the pipe I, so the drip-cock H can be swung around. The location of the check-valve *u* in the cup G above this rotary joint prevents any leak at the joint when no pumping is being done, and capillary grooves in the hub will prevent leak during pumping.

The drip-cock H is shown plainly in Figs. 6 and 7.

The flow-pipe *t* is bent downward and threaded, and onto the threaded part is screwed a sleeve, H, having a milled rim and an outlet-nozzle. The end of the pipe is nicely faced to seat upon the disk *w* in the sleeve. This sleeve has side channels, *x*, to permit the flow of water when the sleeve is slightly unscrewed.

I claim as my invention—

1. The combination, with a screw-cutting lathe, of a lead-screw having a decreasing pitch, the coarser-pitch end of the lead-screw being at the driving end of the lathe.

2. The combination, with a screw-cutting lathe, of the swing-rests L, having vertically-adjustable bearings M to support the work.

3. The combination of a hollow tool-block, a gutter to drain thereinto, a hand-pump attached thereto, a water-cup supported thereby, and a pipe connecting the pump and cup, substantially as set forth.

4. In a drip-cock for a lathe, the combination of milled sleeve H, threaded pipe *t*, and disk-seat *w*, substantially as set forth.

JAMES W. SEE.

Witnesses:
GEORGE H. HELVEY,
JOHN LORENZ.