To all whom it may concern:

Be it known that I, James B. Orbison, a citizen of the United States, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Machine-Tool Stops; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to machine-tools and to an improved method of stops to determine the range of turret and other slides in such tools.

My improvements consist in a revoluble barrel or cylinder provided with a series of concentrically-disposed stop-screws therein, devices to revolve and lock this barrel or cylinder and also the stop-screws therein, as hereinafter more particularly described, and illustrated by drawings that form a part of this specification.

The objects of my invention are to provide a positive and convenient stop-motion for turret-slides and in like cases permitting accurate and easy adjustment to suit the requirements of the work and the position of the tools.

Referring to the drawings, Figure I is a plan view of a turret-lathe provided with my improvement. Fig. II is an enlarged longitudinal section through the stop-cylinder. Fig. III is an end view of Fig. II at the front. Fig. IV is an end view of the disk at the rear end of Fig. II. Fig. V is a side view of the bracket that supports the stop barrel or cylinder. Fig. VI is a partial view of the turning devices to revolve the stop barrel or cylinder. Fig. VII is a front view of the stationary stop-screw, and Fig. VIII is an end view of Fig. VII.

In operating with turret-tools and others of the kind it is essential that their forward range be accurately controlled by stops and that these stops be readily set and adjusted as the work requires.

Referring to the drawings representing an application of my invention, 1 is a common turret-machine; 2, the revoluble turret; 3, the slide or carriage on which the turret 2 is mounted; 4, a hand-wheel to move the carriage 3, and 5 tools inserted in the turret. 7 is a revoluble barrel supported in a bracket 8, that is attached to the rear end of the carriage 3, as shown in Fig. I. This barrel 7 is bored longitudinally with apertures 10, screw-threaded at 12 to receive a series of stop-screws 9—as many in number as there are tools in the turret. These screws 9 fit through the holes 10 in the barrel 7 and run in the screw-threads at 12. Said stop-screws also run in the screw-threads of a movable follower-plate 13, similarly perforated, that is forced outward by a screw 14, as shown in Fig. II, thus clamping in the manner of a jam-nut at one motion all the screws 9. This adjustment gives rigidity to the screws 9 and permits them all to be loosened or fastened at one time.

In cases where it is desirable to adjust one or more of the screws 9 without disturbing or loosening the rest I employ set-screws 15, that can be used in conjunction with the follower-plate 13 to avoid accidental change of the screws 9 after these are adjusted.

To revolve the barrel 7 at each movement or stroke of the carriage 3 or at each operation of the turret-tools 5, there is a cross sliding bar 17, having a hinged pawl 18, that engages the spaced pins 19 in the end of the barrel 7, as shown in Fig. VI. This sliding bar 17 is moved by a lever 20, pivoted at 22 to the slide or carriage 3, as shown in Fig. I. This lever 20 has on its outer face a ledge 23, that engages the roller 24 as the carriage 3 is moved back, pressing the slide 17 inward and turning the barrel 7 accordingly at each stroke of the carriage 3. When the carriage 3 is moved forward, a spring 26 resets the lever 20 and retracts the slide 17.

To hold the barrel 7 accurately and bring the screws 9 into alinement with the stop-screw 27, fixed on the frame of the lathe, I employ a deflecting-spring 28, fastened on the bracket 8 and formed at its forward end to fit into the curved recesses 29 in the follower 13, corresponding in number to that of the stop-screws and of the tools in the turret, thus giving six positions corresponding to the screws 9, as illustrated in Fig. V.

The screws 9 abut against the stop-screw 27, permitting the tools 5 to advance to a particular range determined accurately by adjust...
ment at the beginning, each of these screws 9 representing one of the tools 5 in the turret 2, which is turned coincidently by the usual automatic devices beneath. (Not shown in the drawings.)

Constructed in this manner it will be seen that my improved stop devices do not require a special design of the main machine, but can be applied to machine-tools in use and arranged for other forms of stop devices.

Having thus explained the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a turret-lathe, in combination with the turret-slide, a revoluble barrel axially mounted on said slide in its line of motion, fitted with a series of concentrically-disposed longitudinal stop-screws corresponding in number with the number of tools in the turret, a fixed stop on the lathe-frame against which said stop-screws impinge to limit the forward range of the slide, a cross sliding bar engaging said revoluble barrel at intervals, a pivoted lever connected to said sliding bar, a cam on said lever, a fixed abutment to engage the cam as the slide moves back, whereby the said barrel is rotated to a new position at each backward movement of the slide, and means to hold said barrel in each new position with the corresponding stop-screw in alinement with the fixed stop on the lathe-frame, substantially as specified.

2. In a turret-lathe, in combination with the turret-slide, a revoluble barrel carried upon said slide, having a series of concentrically-disposed longitudinal screw-threaded apertures therein, a movable follower having screw-threaded apertures corresponding in position to the apertures of the barrel, a series of stop-screws fitting the screw-threaded apertures of both barrel and follower, and a central screw, threaded into said follower, and having a bearing in said barrel, whereby the follower is controlled to act as a jam-nut to clamp all the stop-screws simultaneously and release the same, substantially as specified.

3. In a turret-lathe, in combination with the turret-slide, a revoluble barrel having longitudinal screw-threaded apertures therein, a movable follower having screw-threaded apertures corresponding in position to the apertures of the barrel, a series of stop-screws fitting the screw-threaded apertures of both barrel and follower, means to move said follower to jam all the said stop-screws simultaneously, and separate set-screws for locking each stop-screw individually, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES B. ORBISON.

Witnesses:
ALFRED A. ENQUIST,
P. W. J. LANDER.