

J. A. BRADSHAW.  
MACHINE FOR WINDING THREAD.

No. 32,445.

Patented May 28, 1861.

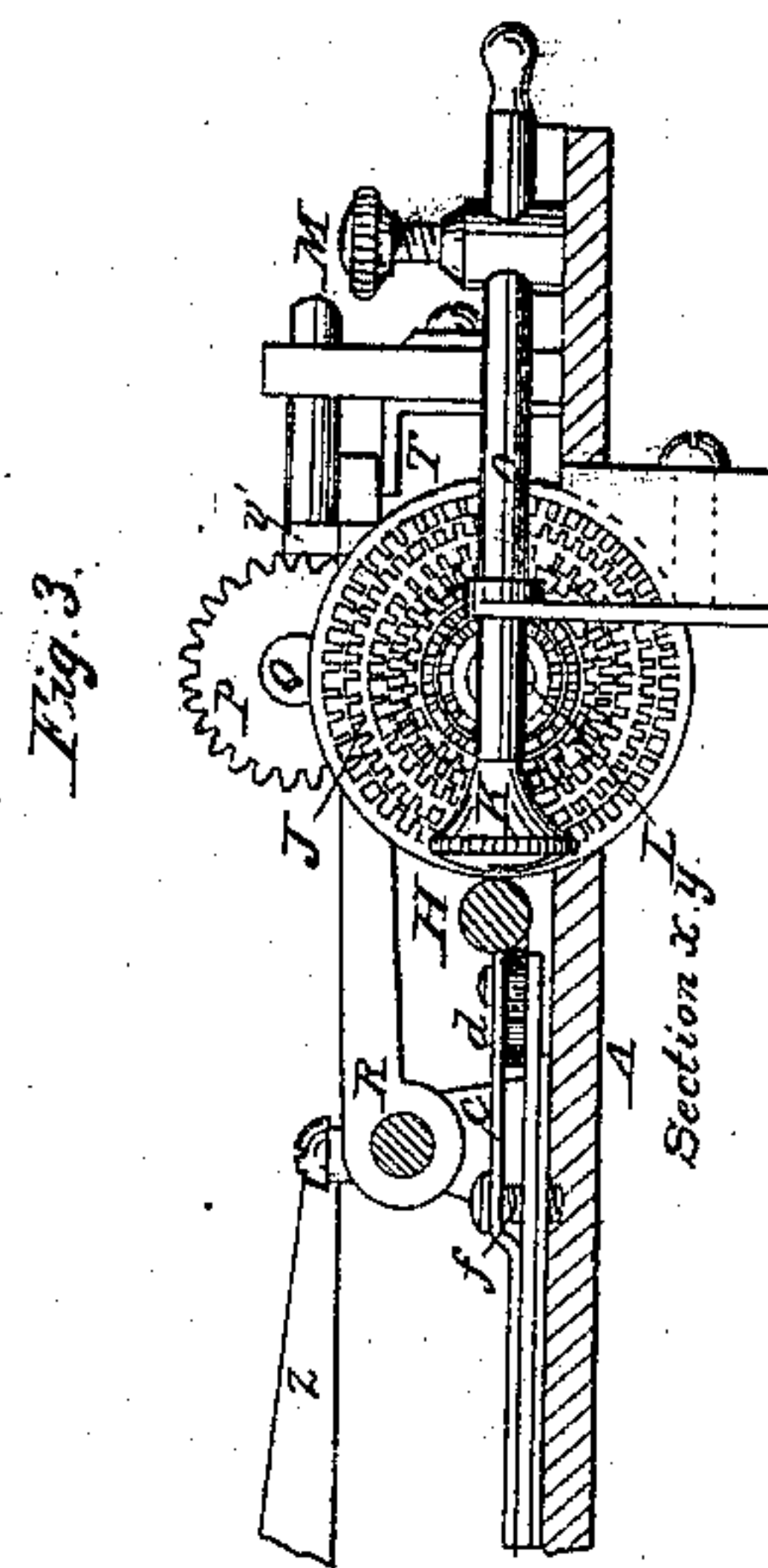
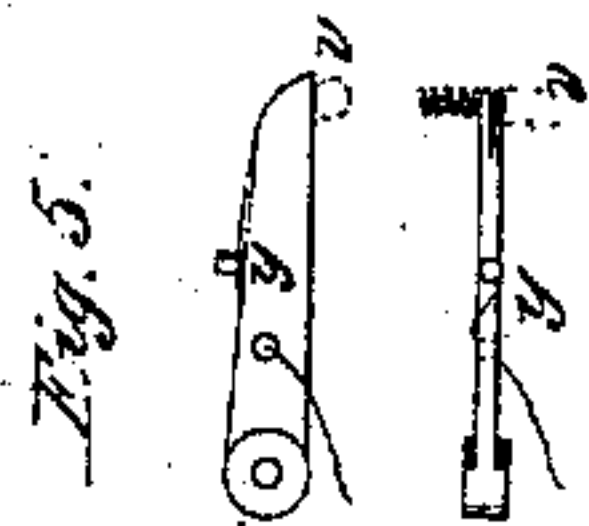
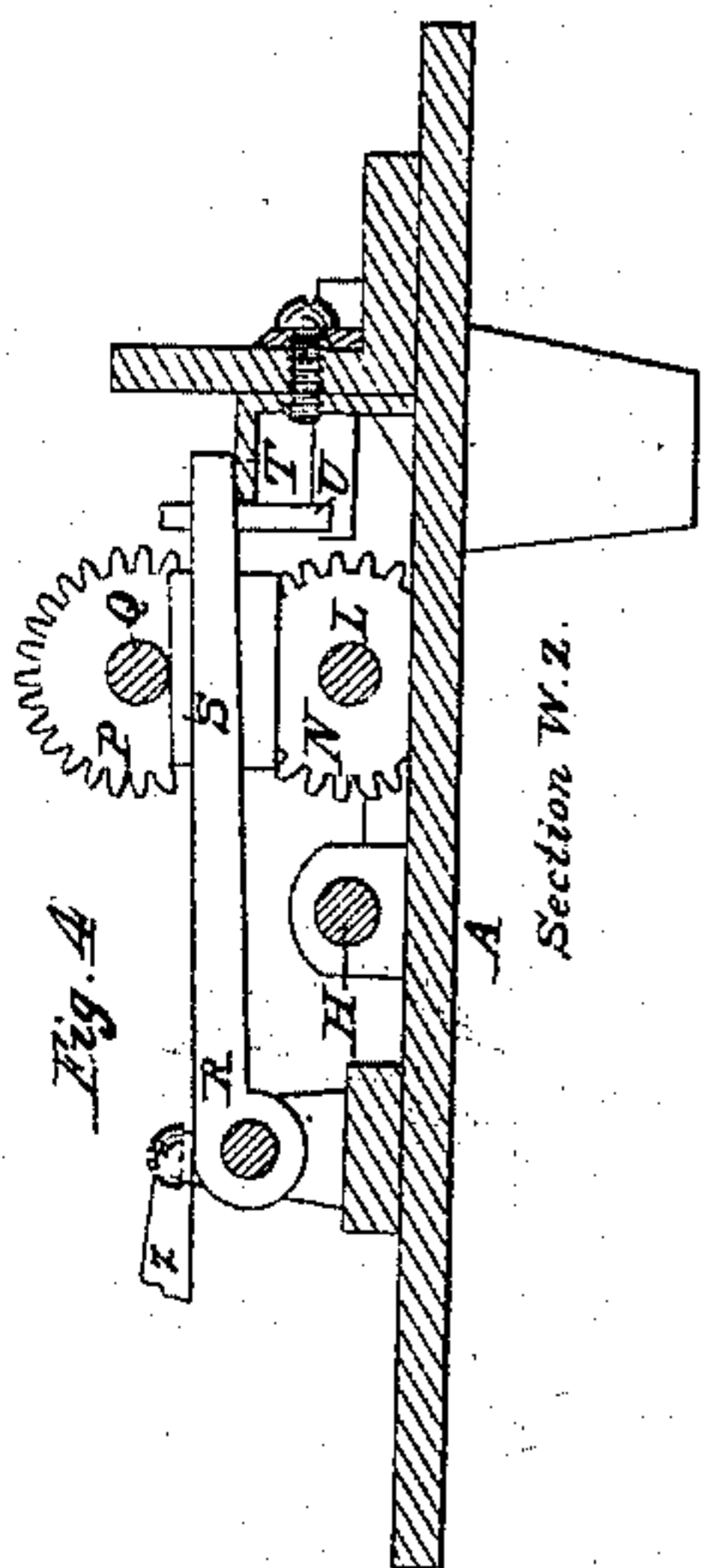


Fig. 1.

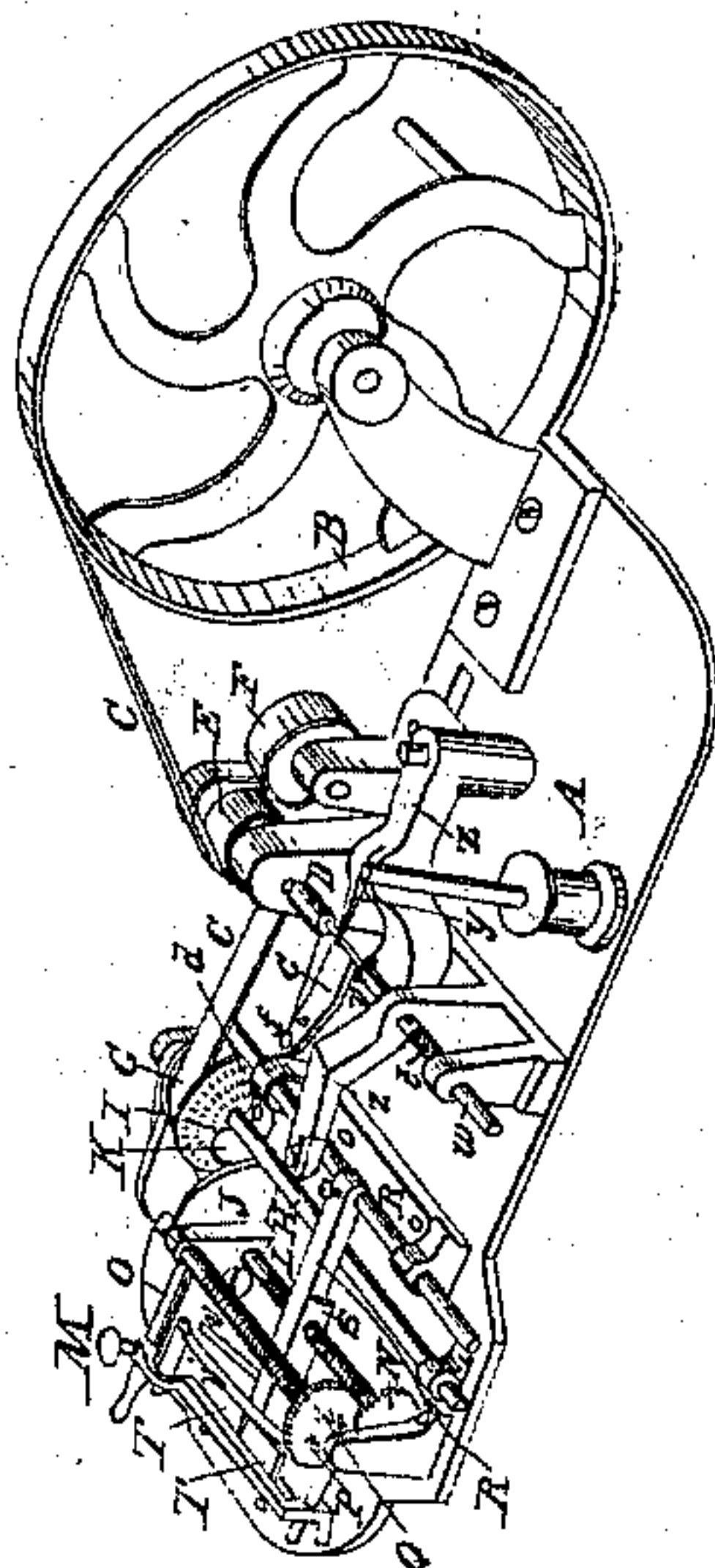
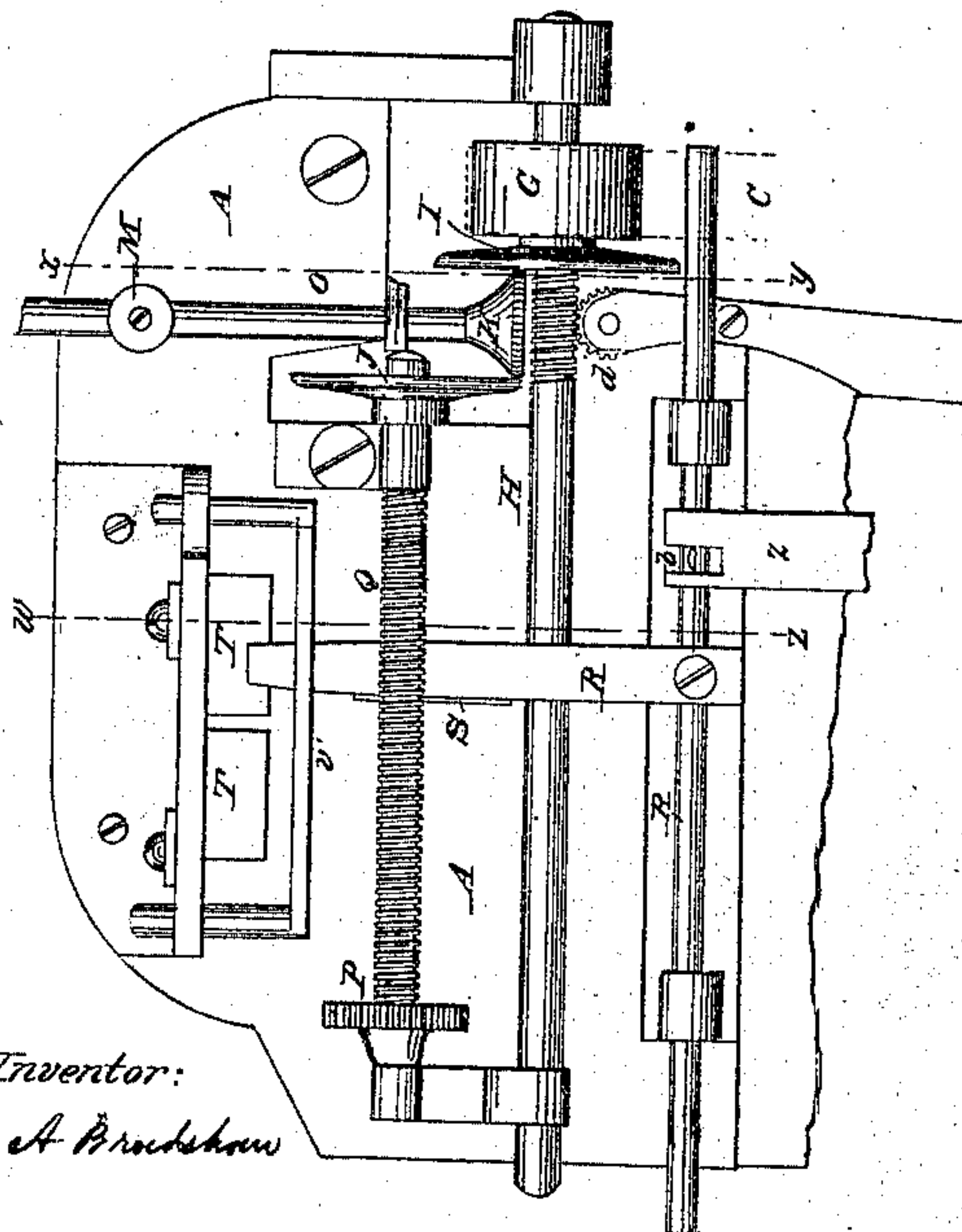


Fig. 2.



Witnesses:

A. S. Dickerman  
O. E. Cushing.

Inventor:

John A. Bradshaw



# UNITED STATES PATENT OFFICE.

JOHN A. BRADSHAW, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND WILLIAM H. BROWN, SR., OF PELHAM, NEW HAMPSHIRE.

## MACHINE FOR WINDING THREAD.

Specification of Letters Patent No. 32,445, dated May 28, 1861.

*To all whom it may concern:*

Be it known that I, JOHN A. BRADSHAW, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented a new and useful Machine for Winding Thread upon the Bobbins used in the Shuttles of Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

Similar letters of reference in each of the several figures refer to like parts.

Figure 1 is a perspective of my machine. Fig. 2 is a plan or top view of a portion of it and Figs. 3 and 4 are vertical sections through *x*, *y*, and *w*, *z*.

In most sewing machines where a shuttle is used there is a bobbin on which one of the threads used in making the stitch is wound and the evenness of the stitch depends in a great measure upon the accuracy and regularity with which the thread is wound upon this bobbin. Hitherto the thread has been guided on the bobbin by hand and of course been very imperfectly wound—this has been the cause of much trouble in the operation of the sewing machine.

Now the object of my invention is to supply a means of winding the thread upon the bobbin mechanically in a perfectly accurate and even manner.

The different parts of the machine are described as follows:

A represents the plate or table to which the different working parts are attached.

B is the hand wheel or driving pulley which gives motion by means of the belt C to the pulley E on the bobbin shaft D and passing from thence over the binder F to the pulley G gives motion to the shaft H on which is fixed the plate surface gear I. This gear I as well as the gear J (which works in connection with it) is a circular plate having corrugations or teeth in its radial surface instead of in its edge like a common gear. These teeth are arranged in concentric circles on the surface of the plate.

The gear I through means of the intermediate pinion K gives motion to the gear J on the end of the traversing screw L and this motion may be made faster or slower according as the intermediate pinion K is set farther from or nearer to the center of

the plate surface gear I. The necessity of this arrangement will be explained hereafter.

The intermediate pinion K runs loose upon the end of shaft O which is hung in swinging bearings. By means of the set screw M the shaft O can be fixed in any position desired and thus the pinion K is adjusted to its different positions between the two gears I J.

N is a gear on the lower traversing screw L which by means of the gear P gives motion to the upper traversing screw Q. The object of these two traversing screws L and Q is to give a reciprocating movement to the carriage R. This it accomplishes by means of the plate of steel S fixed to the arm of carriage R and which is intended to work in the threads of the screws. The carriage R is also regulated by the adjustable guides T, T, and springs U U' to wit: When the arm has been carried by means of the lower screw L to the end of the guide T, the spring U throws the arm up so that the steel plate S engages with the upper screw, and traverses the arm R along on the upper side of the guide T until it arrives at the other end of it, when the spring U' throws it down upon the lower screw, and thus the reciprocating motion is continued. The distance which is traversed by the carriage R depends upon the length of the bobbin which is to be wound, and is regulated by extending or contracting the guides T, T. V the bobbin to be wound receives its motions by being pressed by means of spring X and spindle W against the bobbin shaft D the end of the shaft being made to receive one head of the bobbin—while the other head runs on a small pivot in the spindle W. The thread to be wound passes through a hole and around a pin and through a curved slot in the end of self-adjusting finger Y, as seen in Fig. 5, and is guided by this means to the bobbin. The finger is moved back and forth from end to end of the bobbin by being attached to lever Z, one end of which swings on a pin fixed to the table and the other end of which is guided by a pin (*b*) in the carriage R.

The means by which the fingers can be made to traverse a longer or shorter bobbin have been explained—but there is another thing to be considered and that is the fine-



ness or coarseness of the thread to be wound.

When a coarse thread is to be wound the finger Y must be made to travel faster than when a fine thread is wound. Now as the relative speed of the bobbin is always the same, this change must be effected by altering the speed of the screws, and this is done by changing the position of the intermediate pinion K. When a coarse thread is to be wound the pinion K must be placed near the center of the plate surface gear J which will drive the screws fast—but if a very fine thread is to be wound it should be near the outside, and thus the adjustment for the different kinds of threads is easily effected.

In order that the pinion K may be readily disengaged from the two gears the shaft H is retained in its place by friction applied as follows: A screw-thread is cut for a short distance in the shaft H which as the shaft revolves causes the worm gear (d) to revolve,—but as the gear is clamped in its bearings by friction clamp (c) the effort made by the screws to turn the worm gear has a tendency to crowd the plate surface gear I upon the intermediate pinion K and that being free to move is pressed against

the plate gear J so that the three when in motion are kept in close contact by the friction applied to worm gear (d). This friction can be increased or diminished by means of a set screw (f). When it is desired to change the rate of speed of the screws, the plate gear I and shaft H are pressed back by hand away from the intermediate pinion K which being thus disengaged may be adjusted where desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. The combination of the two plate surface gears I, J with the pinion K hung and adjusted as described for the purpose and substantially as set forth. 45

2. The combination of the friction gear (d) clamp (c) set screw (f) with the worm shaft H for the purpose and substantially as described.

In witness whereof I have hereunto set my signature this eighteenth day of December A. D. 1860. 50

JOHN A. BRADSHAW.

In presence of—

A. T. DICKERMAN,  
O. E. CUSHING.