

June 30, 1925.

1,544,145

H. A. FOOTHORAP

STORAGE SPOOL

Filed April 13, 1920

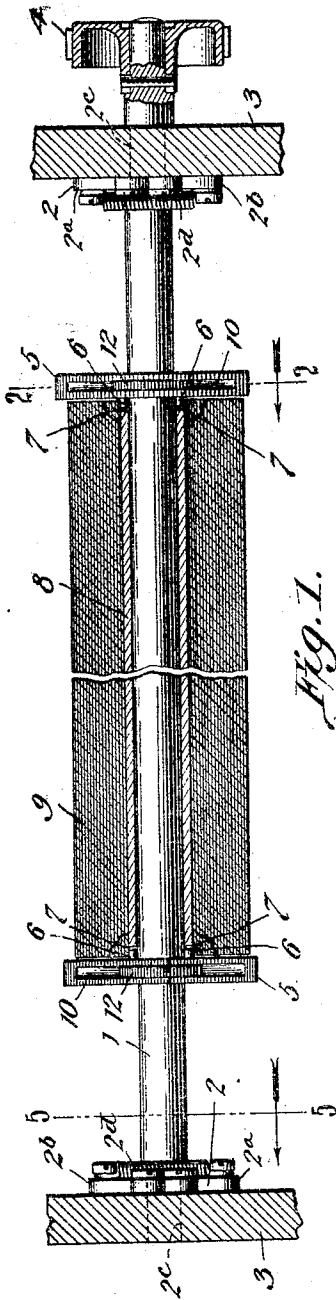


Fig. 1.

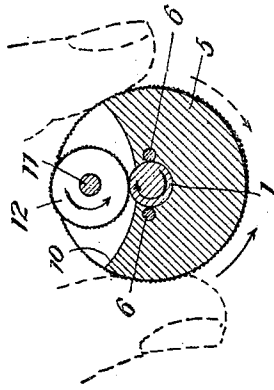


Fig. 2.

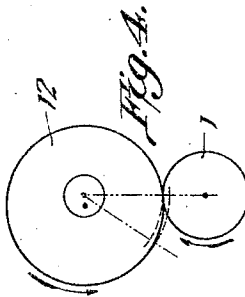


Fig. 4.

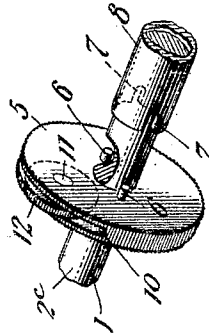


Fig. 3.

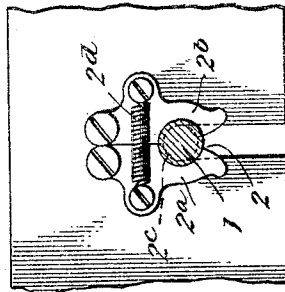


Fig. 5.

Witnesses
H. C. C. C. C. C.

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1,544,145

UNITED STATES PATENT OFFICE.

HARRY ARTHUR FOOTHORAP, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR TO
ELLIOTT-FISHER COMPANY, A CORPORATION OF DELAWARE.

STORAGE SPOOL.

Application filed April 13, 1920. Serial No. 373,571.

To all whom it may concern:

Be it known that HARRY ARTHUR FOOTHORAP, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, has invented certain new and useful Improvements in Storage Spools, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to storage spools of the kind upon which long paper and carbon strips are wound for use in connection with writing-adding machines.

The object of the invention is to produce a spool of inexpensive construction which may be quickly and conveniently located upon and secured to a supporting spindle.

Another object of the invention is to make the spool proper in the form of an inexpensive hollow core or sleeve, upon which the paper is wound and shipped and adapted for separable connection with locating and securing flanges which are part of the machine equipment and serve to quickly and conveniently locate and hold successive cores upon the spindle as the supply of paper is replenished.

To the accomplishment of the above objects, the invention resides in the embodiment thereof to be hereinafter described, illustrated and claimed.

In the accompanying drawings:—

Fig. 1 is a sectional elevation showing a spool spindle upon which is mounted a spool constructed in accordance with the invention.

Fig. 2 is a sectional view through the spindle and one of the flanges and disclosing the automatic flange lock.

Fig. 3 is a perspective view of a flange, a portion of the spindle and a portion of the spool core, clearly showing the manner in which the core and flanges are coupled.

Fig. 4 is a diagrammatic view illustrating the operation of the flange lock, and

Fig. 5 is a detailed view of one of the spindle bearings.

The paper spindle 1, is removably and rotatably mounted in bearings 2, carried by supports 3 and has at one end a knurled head 4, by means of which the spindle may be rotated or drawn endwise. Ordinarily, however, the spindle is not movable endwise since the bearings 2 consist of two pivoted bearing plates 2^a and 2^b, which are drawn

into engagement with a reduced portion, 2^c of the spindle, by a spring 2^d, which must be overcome in order to spread the members 2^a and 2^b apart to release the spindle. Between the bearings 2, the spindle supports a pair of similar spool flanges 5, preferably of circular form, as shown, and having a pin 6 adapted to extend into notches 7 in the ends of a hollow spool core 8, which fits approximately upon the spindle. The core 8 comes from the paper manufacturer with a long strip, web or sheet of paper 9 wound thereon and is intended to rotate with the spindle 1 as the paper is drawn from the spool and used. The paper employed for different purposes is of different widths. The spools, therefore, are or may be of different lengths.

The flanges 5 are utilized as locating and securing means for the spools, being separably connected with the cores to permit the release and removal of a core from which the paper has been unwound and the engagement of another core upon which a new supply of paper is received. These flanges 5, while approximately fitting the spindle, are independently shiftable longitudinally thereof to accommodate any size spool in any desired location lengthwise of the spindle. Having been properly located and brought into engagement with or coupled to the core 8, the flanges must be locked to the spindle to maintain the location of the spool thereon and compel its rotation therewith.

To accomplish this purpose each flange is formed with a peripheral recess 10 of sufficient depth to cause a portion of the periphery of the spindle 1 to protrude therein, as shown in Fig. 2. Within the recess 10 is mounted on the pin 11, parallel with the spindle, an eccentrically mounted knurled locking disc 12. The knurled periphery of the disc 12 bears against the spindle 1 with effective or ineffective friction, according to the position of the locked disc on its axis. The disc 12 may be turned by hand to lock or unlock the flange from the spindle, inasmuch as its periphery projects slightly beyond the periphery of the flange and is therefore accessible for direct operation.

The purpose of the particular construction shown, however, is to secure the automatic locking of the flanges by the manipulation thereof without the necessity for the direct manipulation of the locking devices.

For this reason the flanges themselves are peripherally knurled, as shown, to enable the operator to turn them in one direction, indicated by the dotted arrow in Fig. 2, to release the lock and in the opposite direction, as indicated by the full line arrow in said Fig. 2, after the proper positioning of the flange on the spindle, to lock the flange by reason of the rolling engagement between the eccentric disc 12 and the spindle as the flange is turned on the latter. The cramping or wedging action between the locking disc and the spindle will be clear by reference to Fig. 4, wherein the true and eccentric centers of the disc are indicated and the variation of the engaging services of the spindle and disc from a true and eccentric relation, as indicated by dotted arcs struck from the eccentric center of the disc.

It will be obvious that by releasing the spindle 1 from one or both bearings, the spool heads or flanges may be rotated relative to the shaft until free to move thereon, after which the core 8 and one or both of the flanges may be withdrawn from the spindle. A new spool may then be slipped on the spindle, the flanges brought into engagement with the ends of the core and quickly locked in position either by turning the flanges on the spindle or holding the same stationary while the spindle is rotated, the cramping or wedging of the locking discs against the spindle serving to securely lock the flanges and the spool to the spindle in the selected location.

It will, of course, be understood that while

I have shown a preferred embodiment of the invention, variations thereof may be effected within the scope of the protection prayed.

What I claim is:—

1. A spool of the class described, having a recessed flange provided with an axial opening, of an eccentric locking disc mounted within the recess of the flange and having its periphery exposed at the periphery of the flange and within the axial opening thereof.
2. The combination with a spool and spindle, of a locking device carried by the spool and rotatable on an eccentric axis to engage the periphery of the spindle.
3. A separable flange for a spool of the class described, having means for engaging the flange with a core, an axial opening for the reception of a spindle, and a rotary locking device rotatable about an eccentric axis to engage the periphery of the spindle and exposed for manual operation to release the flange from the spindle.
4. The combination with a spindle, of a core rotatable thereon, a pair of flanges separably connected to the ends of the core, and eccentric locking devices carried by the flanges to engage the periphery of the spindle.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HARRY ARTHUR FOOTHORAP.

Witnesses:

J. AZALEA WIGFIELD,
MARSHALL H. DEAN.