Oct. 17, 1950 A. H. KENNARD 2,526,565

DOUBLE LOCK CORE HEAD

Filed March 23, 1948

Fig. 1.

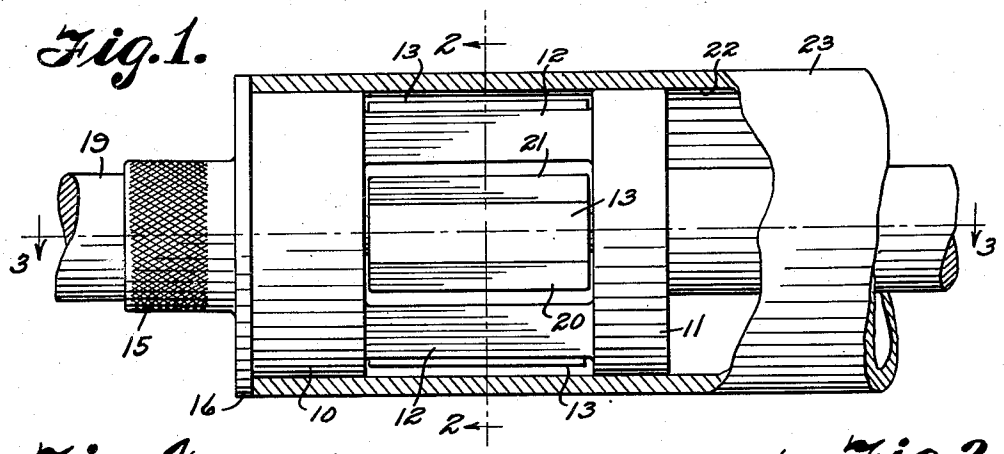


Fig. 4.

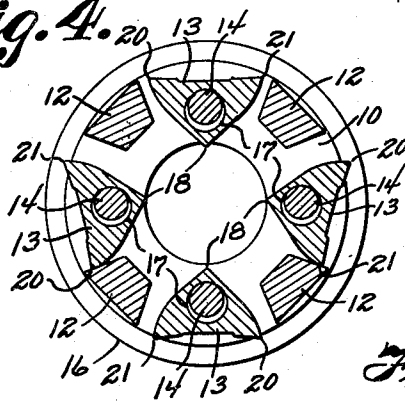


Fig. 2.

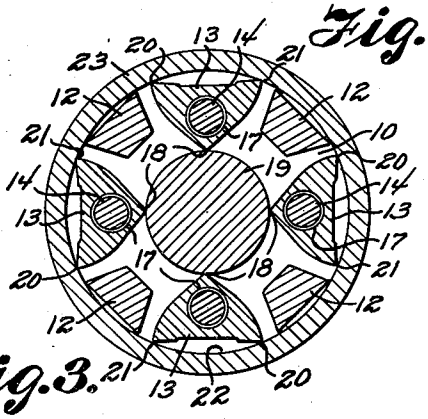


Fig. 3.

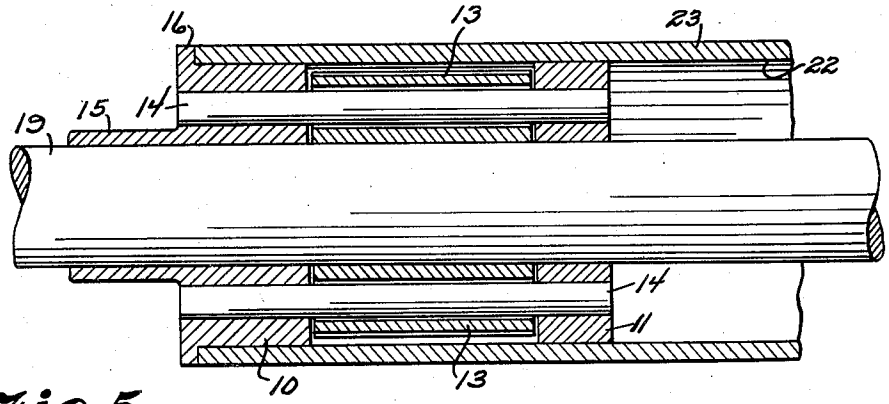
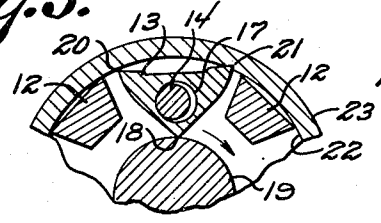


Fig. 5.



INVENTOR.

Archie H. Kennard

BY Victor J. Evans & Co.

ATTORNEYS

Patented Oct. 17, 1950 2,526,565

UNITED STATES PATENT OFFICE

2,526,565

DOUBLE LOCK CORE HEAD

Archie H. Kennard, Ridlonville, Maine

Application March 23, 1948, Serial No. 16,441

3 Claims. (Cl. 287—52.09)

1

This invention relates to power transmission means for positively locking a mandrel of larger diameter than a shaft on a shaft, and in particular a plurality of locking dogs pivotally mounted between collars on a driving shaft and adapted to be inserted in the end of a mandrel holding a roll of paper.

The purpose of this invention is to provide a positive driving element that may be slid on a driving shaft and into the end of a paper roll mandrel to establish a positive lock between the surface of the shaft and inner surface of the mandrel.

Locking devices such as clutches, set collars and the like have been used for securing paper roll mandrels on driving shafts but, particularly in set collars it is difficult to tighten the holdling elements when the device is in operative position, and when locking dogs are used it is difficult to mount the dogs so that they may be inserted in the end of a mandrel of a roll of paper. With this thought in mind this invention contemplates a transmission unit having a plurality of parallel gripping elements pivotally mounted therein with the elements positioned in gripping relation with both the surface of the driving shaft and inner surface of the mandrel.

The object of this invention is, therefore, to provide means for mounting a plurality of toothed parallel gripping dogs between collars wherein the dogs may be slid into the end of the mandrel of a roll of paper so that they may be positioned in gripping relation with the shaft and mandrel.

Another object of the invention is to provide means for establishing positive driving relation between a shaft and a mandrel without changing the shaft or mandrel.

A further object of the invention is to provide a positive driving element adapted to be slid into the end of a mandrel of a roll of paper having a plurality of pivotally mounted gripping dogs therein which is of a simple and economical construction.

With these and other objects and advantages in view the invention consists of the new and novel combination, construction, and arrangement of parts as hereinafter more fully described, set forth in the claims appended hereto, and disclosed in the accompanying drawings forming part hereof, wherein:

Figure 1 is a view showing a side elevation of the end of a mandrel with part broken away showing the power transmitting element therein.

2

Figure 2 is a cross section through the power transmitting element and mandrel taken on line 2—2 of Figure 1.

Figure 3 is a longitudinal section through the device with parts shown in elevation and with the end of a mandrel shown on the device.

Figure 4 is a similar section illustrating the parts in gripping relation, and with the parts exaggerated.

Figure 5 is a similar section showing the upper part of the device with the upper dog in operative position wherein the driving shaft is turning clockwise.

Referring now to the drawings wherein like reference characters denote corresponding parts the locking power transmitting element of this invention includes a hub 10, a collar 11 spaced from the hub and connected thereto by ribs 12, and a plurality of gripping dogs 13 pivotally mounted on pins 14 between the hub and collar.

The hub 10 is provided with an extending sleeve 15 and an annular flange 16 is positioned around the outer end.

The dogs 13 are freely mounted between the hub and collar on the pins 14 through slightly enlarged holes 17, and the inner surfaces are provided with teeth 18 that contact the shaft 19. The dogs are triangular-shaped in cross section and teeth 20 and 21 are provided on the outer surface that engage the inner surface 22 of a mandril 23.

The dogs 13 are positioned between the ribs 12 as illustrated in Figures 2 and 4, and although four dogs are shown it will be understood that as many as may be desired may be used.

With the parts arranged in this manner the element may be slid along the shaft and positioned in the end of a mandrel of a roll of paper and as the shaft is rotated the dogs will tilt slightly and the outer teeth will bite into the inner surface of the mandrel thereby forcing the mandrel with the roll of paper to positively turn with the shaft. The transmission unit will grip when turned in either direction so that similar units may be used in both ends of the mandrel, if desired, and right and left hand units are not required.

The unit provides a double lock, gripping both the shaft and core head, or collar, or mandrel, as desired.

It will be understood that modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A locking collar comprising a plurality of parallel triangular-shaped toothed dogs, a pair of spaced collars, and means pivotally mounting the dogs in the collars with the dogs positioned between a shaft on which the collars are positioned and the inner surface of a mandrel positioned on the shaft, whereby the dogs are in gripping relation with both the shaft and mandrel.

2. A lock collar for power transmission comprising a hub, a collar spaced from the hub and connected thereto by radially disposed spaced ribs, a plurality of toothed locking dogs positioned between the hub and collar and also between the ribs, and pins extending through the dogs with the ends thereof mounted in the hub and collar, respectively, providing pivotal mounting means for the dogs.

3. In a power transmission unit, the combination, which comprises, a hub having an extending sleeve on the outer end and also having an annular flange around the outer end, a collar spaced

longitudinally from the hub and connected thereto by radially disposed spaced parallel ribs, a plurality of locking dogs, triangular shape in cross section with a shaft gripping tooth on the inner surface and with two gripping teeth on the outer surface of each dog, each of said dogs having a longitudinally disposed bore extending from end to end thereof, and a plurality of shafts positioned through the bores of the dogs and with the ends thereof mounted in the hub and collar, respectively.

ARCHIE H. KENNARD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
437,125	Lewis	Sept. 23, 1890
1,055,606	Cathcart	Mar. 11, 1913
1,560,399	Puston	Nov. 3, 1925