P. FERBER.

TAPE REEL.

APPLICATION FILED DEC. 30, 1907.

**901,896.** Patented Oct. 20, 1908.

*Fig. 1.*

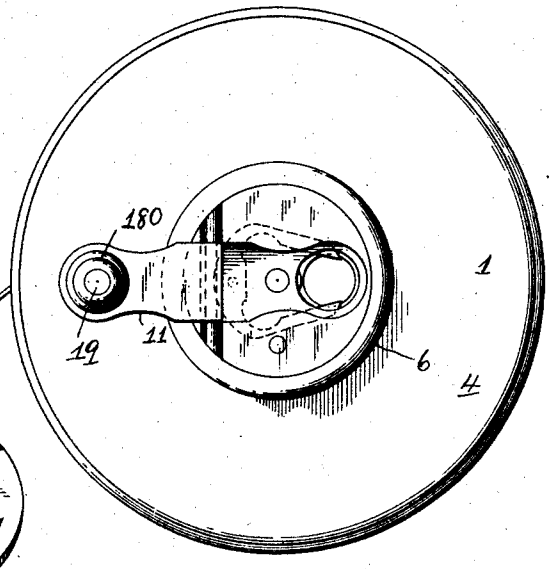
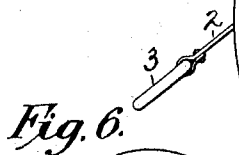



*Fig. 6.*



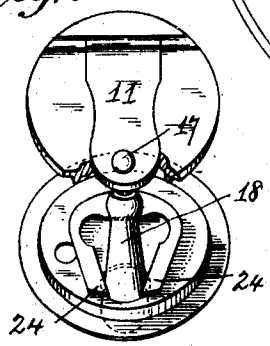




*Fig. 7.*

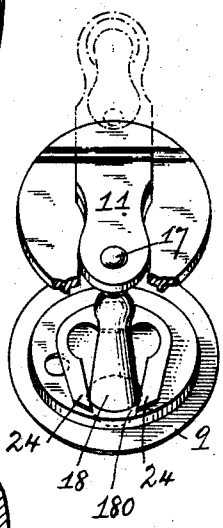



*Fig. 2.*

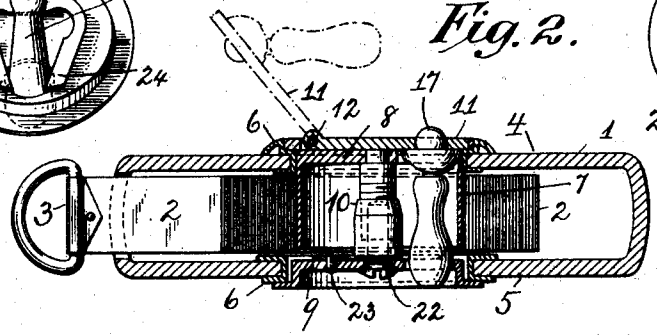



*Fig. 4.*

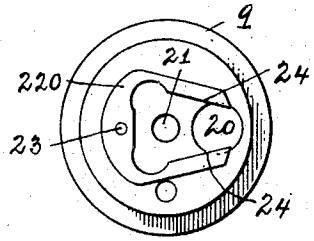



*Fig. 3.*

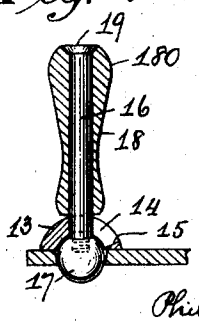
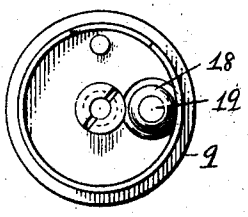



*Fig. 5.*




Attest:
Sara G. O'Rourke
Alan C. McDonnell.

Philip Ferber, Inventor:
by William R. Baird
his Atty.

THE NORRIS PETERS CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

PHILIP FERBER, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO THE KEUFFEL & ESSER COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## TAPE-REEL.

No. 901,896. Specification of Letters Patent. Patented Oct. 20, 1908.

Application filed December 30, 1907. Serial No. 408,665.

*To all whom it may concern:*

Be it known that I, PHILIP FERBER, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Tape-Reels, of which the following is a specification.

This invention relates to cased tape reels and its novelty consists in the construction and adaptation of the parts as will be more fully hereinafter pointed out.

Cased tape reels have for some years been made provided with a tape case having a central drum upon which the tape is adapted to be wound and which drum has a jointed hinged handle so arranged that it can be folded in to pass within the drum and extend slightly beyond the opposite surface thereof in order that it can readily be pushed outward. In practice, two disadvantages developed in using this form of instrument, although it constituted an advance in the art. These were, that the jointed handle was expensive to make and required considerable skill in assembling and finishing it, and there was no means provided for retaining the handle in position when it has been infolded, to secure it against accidental displacement.

I have overcome the difficulties referred to by providing a simple and ready means for retaining the handle in position within the drum by means of a yielding or elastic catch adapted to engage its outer extremity and by constructing the handle so that it may be inexpensively made, assembled and finished.

In the drawings, Figure 1 is a top plan view of the improved tape reel and case showing the handle thrown back; Fig. 2 is a central section of the same with the handle infolded in the case and shown thrown back in dotted outline; Fig. 3 is a central section of the handle showing the details of the end of the handle; Fig. 4 is a plan of the under side of one of the drum disks, and Fig. 5 is a plan of the drum with the disks shown in Fig. 4 removed, Fig. 6 is a perspective showing the handle held by the spring catch and Fig. 7 is a similar view showing it in the act of being expelled.

In the drawings, 1 is the case made of any suitable size and material, such as thin metal and preferably covered externally with leather. An opening is provided in its outer edge to allow for the unwinding of the tape 2 which terminates in a finger ring 3. The case comprises two plates 4 and 5, provided each with an inner central aperture upon the periphery of which is mounted the tape drum in the usual manner upon bearings 6 which are crimped upon the plates 4 and 5.

The drum consists of a central cylinder 7 and two side plates, one, 8, made integral with the drum, and the other, 9, made separable therefrom, the plates being united by a central axial post 10. A transverse rod (not shown) serves as a means for attaching the inner end of the tape to the drum. This transverse rod is of usual construction and forms no part of this invention.

The plate 8 carries the crank handle of the instrument, which consists of a flat arm 11 hinged upon a pintle 12 and provided at its outer extremity with a semi-spherical socket 13, having a longitudinal aperture 14 cut therein. This aperture terminates at its lowest extremity 15 at a predetermined point selected for a purpose, which will presently appear. The handle proper comprises a central rod 16 terminating in a ball 17 and serving as a bearing for a sleeve 18 which is held in position on the central rod 16 by means of a rivet 19, or in any other suitable manner.

The plate 9 is provided with an aperture 20 adapted to receive the end of the handle sleeve 18 and with another aperture 21 adapted to receive a screw 22, whereby it is secured in place to the axial post 10. On the inner side of the plate 9 is secured a catch 220 by means of a rivet 23, or in any other suitable manner, said catch comprising a plate having an opening through which the handle portion 18 extends and spring fingers 24 which are arranged on opposite sides of its opening and are turned inwardly so as to approach each other immediately back of the aperture 20, whereby when the handle is infolded as shown in Fig. 2, the fingers 24 of the spring will serve as a catch to coöperate against the enlarged portion 180 of the sleeve 18 and hold the latter and consequently the handle against accidental displacement. This construction has the further advantage that when the handle is infolded and it is desired to use the instrument, inward pressure upon the tip of the rod 16 moves this widest portion of the sleeve away from the spring and the contact of the latter with the sloping sides of the sleeve expels the handle

smartly from the drum. This obviates the necessity of grasping it by the fingers to move the handle away from the drum after it has partly protruded therefrom.

The limitation of the length of the slot 14 to the point 15 is for the purpose of insuring the passage of the sleeve 18 into the drum 7, when the handle is infolded. The slot 14 permits the rod 16 to move freely until stopped in the outward direction by the extreme upper end of the slot when the handle is at right angles to the arm 11. It permits a similar movement in the inward direction to the point 15 at the lower end of the slot, this point being so arranged that when the handle contacts therewith its tip is just in position to pass inside of the drum cylinder. The handle is thus so arranged that when the tape is being wound the rod 16 is substantially at right angles to the arm 11, and when the handle is to be infolded in the drum it assumes a position which will insure its passage therethrough.

By this construction the handle is readily made and quickly assembled and no special adjustment of the parts is needed, and after it has been infolded within the drum it is held in place against accidental displacement and its complete expulsion from the drum is secured by pressure of the tip of the handle inwardly.

What I claim as new is:—

1. In a tape reel, the combination with a tape drum, of a hinged arm provided with a socket having a longitudinal slot of limited length, and a handle adapted to project through said slot and terminating in a ball adapted to engage loosely with said socket.

2. In a tape reel, the combination with a tape drum, of a hinged arm provided with a socket having a longitudinal slot of limited length, a handle comprising a central rod terminating in a ball adapted to engage loosely with said socket and which rod projects through the slot, and a sleeve loosely mounted to rotate on the rod and the outer surface of which contacts with the walls of the slot to limit the movement of the handle.

3. In a tape reel, the combination with a tape drum, of a hinged arm provided with a socket having a longitudinal slot of limited length, a handle comprising a central rod terminating in a ball adapted to engage loosely with said socket and which rod projects through the slot, a sleeve loosely mounted to rotate on the rod and the outer surface of which contacts with the walls of the slot to limit the movement of the handle, and means for holding the sleeve on the central rod.

4. In a tape reel, the combination with a tape drum, comprising two side plates each apertured in line to receive the handle, of a hinged arm secured to one of the plates and provided with a socket having a longitudinal slot of predetermined length therein, and a handle terminating in a ball adapted to engage the socket, the movement of the handle being limited by the walls of the slot to cause the handle, when swung inwardly, to register with the apertures in the drum plates.

5. In a tape reel, the combination with a tape drum comprising two side plates, each apertured in line to receive the handle, of a hinged arm secured to one of the plates and provided with a socket having a longitudinal slot of predetermined length therein, a handle terminating in a ball adapted to engage the socket and means for holding the handle against accidental displacement from the second plate.

6. In a tape reel, the combination with a tape drum comprising two side plates, each apertured in line to receive the handle, of a hinged arm secured to one of the plates and provided with a socket having a longitudinal slot of predetermined length therein, a handle terminating in a ball adapted to engage the socket and means for holding the handle against accidental displacement from the second plate, comprising a spring catch secured to the under side of said plate and adapted yieldingly to embrace the handle.

7. In a tape reel, the combination with a tape drum having apertured side plates, of a handle hinged to one of the plates and provided with a jointed crank whereby it may be caused to pass through the apertures in the side plates and a spring catch which yieldably embraces the crank and is adapted to impart an impulse thereto when the handle is moved relatively to the spring to release it from the catching engagement of the latter thereof.

8. In a tape reel, the combination with a tape drum having apertures, of a hinged handle having an arm arranged outside the drum and a handle portion of a length adapted to extend through the drum and be exposed at the end opposite the arm, and a spring catch arranged inside the drum and provided with converging members which engage opposite sides of the handle portion and impart an impulse to the latter when pressure is applied to said exposed end to free the handle portion from the catching engagement of the spring thereon.

9. In a tape reel, the combination with a tape drum having apertures, of a hinged handle having an arm arranged outside the drum and a handle portion of a length adapted to extend through the drum and be exposed at the end opposite the arm, said handle portion being tapered toward each end, and a spring catch provided with converging members which are arranged in the path of the handle portion and are adapted to engage opposite parts of the wider portion

thereof when the same is fully inserted in the drum, said members adapted to impart an impulse to the handle portion when pressure is applied to the exposed end of the handle.

10. In a tape reel, the combination with a tape drum, of a hinged handle having an arm arranged outside the drum and provided with a handle portion adapted to extend into the drum and tapered toward each end, and a catch for the handle, comprising a plate provided with projecting yieldable fingers to engage opposite sides of said handle portion.

11. In a tape reel, the combination with a tape drum having apertured walls, a hinged arm carried by one of the walls, a handle portion carried by the arm and in length adapted to extend through the drum and be exposed at the end opposite the arm, said handle portion tapered toward its ends, and a spring catch arranged in the drum and comprising a plate having an aperture through which the handle portion extends and spring fingers to engage opposite sides of the handle portion.

12. In a tape reel, the combination with a tape drum having apertured walls, a hinged arm carried by one of the walls, a handle portion carried by the arm and in length adapted to extend through the drum and be exposed at the end opposite the arm, said handle portion tapered toward its ends, and a spring catch arranged in the drum and comprising a plate secured to the other wall of the drum and having an aperture through which the handle portion extends and converging spring fingers at opposite sides of said aperture, said fingers having edgewise engagement with said handle portion.

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

PHILIP FERBER.

Witnesses:
B. B. Van Sickle,
E. Moll.