April 28, 1953 E. J. McBRIDE 2,636,696

PIRN OR CONE HOLDER

Filed Dec. 28, 1951 2 SHEETS—SHEET 1

Fig. 1

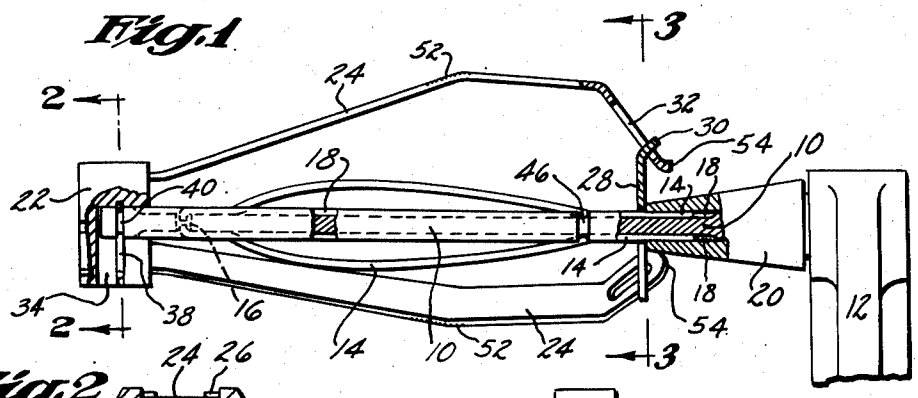


Fig. 2

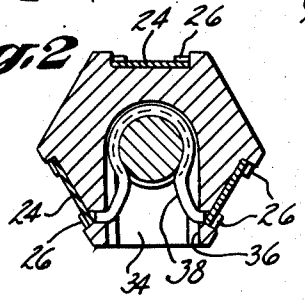


Fig. 3

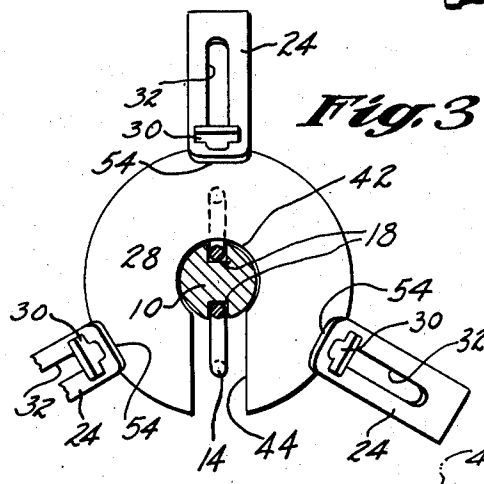


Fig. 5

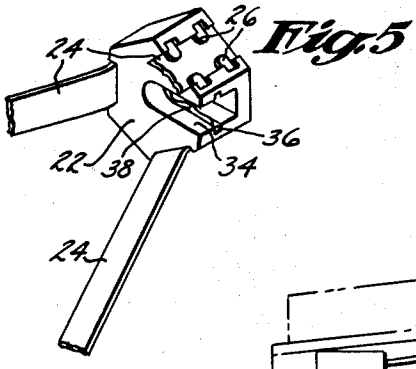
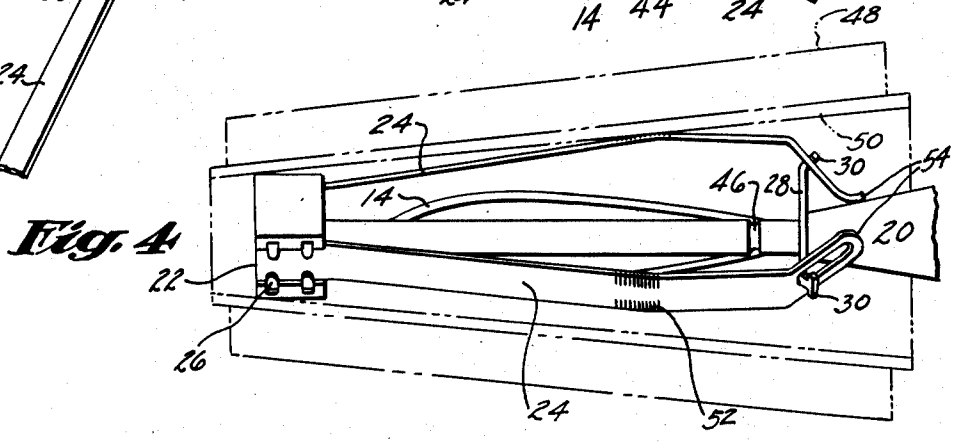


Fig. 4



INVENTOR.
Edward J. McBride
BY
Louis Necho
Attorney

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Fig. 6

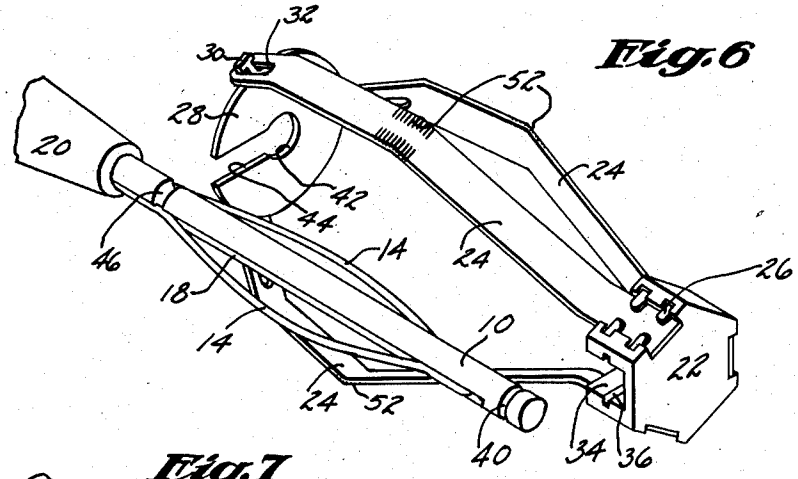


Fig. 7

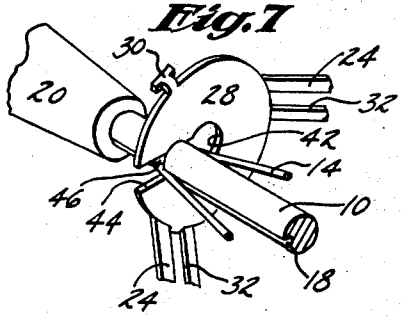


Fig. 8

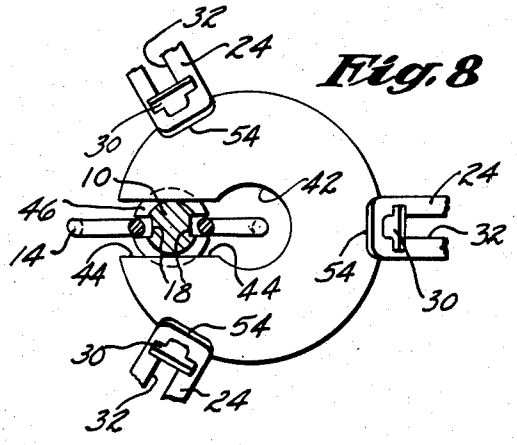
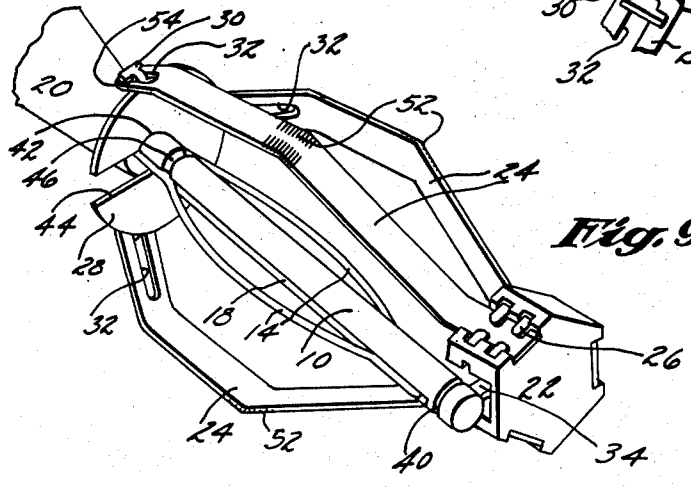


Fig. 9



INVENTOR.
Edward J. McBride
BY
Louis Necho
Attorney

Patented Apr. 28, 1953

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PIRN OR CONE HOLDER

Edward J. McBride, Philadelphia, Pa.

Application December 28, 1951, Serial No. 263,846

6 Claims. (Cl. 242—130)

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My invention relates to a cone and pirn holder of the general type disclosed in my prior Patent No. 2,549,618; in the Lambach Patent No. 2,437,100, and in my copending application Ser. 209,775, filed February 7, 1951, and entitled Cone or Pirn Holder.

Cone or pirn holders are used in large numbers in connection with a conventional creel and each holder includes a main, permanently mounted holder for receiving and supporting a yarn carrier having a cylindrical bore, and an auxiliary, detachable holder, adapted to be superimposed upon the main holder for receiving and supporting a yarn having a conical bore.

In the holder disclosed in the Lambach patent, the auxiliary holder is slipped, longitudinally, over the main holder and is held in place by means of a set screw. Set screws present a snagging hazard and removing and applying the screws involves considerable expense in labor and in shut-down time.

In my prior above-mentioned patent, the auxiliary holder is super-imposed on the main holder by presenting the auxiliary to the shank of the main holder in a direction normal to the axis of said shank, instead of slipping the auxiliary holder longitudinally over the main holder. This facilitated the application and removal of the auxiliary holder.

A further improvement is shown in my above-mentioned copending application in which the auxiliary holder is applied to the shank of the main holder in generally the same manner but in which the set screws of my prior patent and of the Lambach patent are dispensed with and the auxiliary holder is provided with springs which can be snapped on, or off, easily and quickly.

From the foregoing, and from the state of the art at large, it can be seen that the manufacture and installation of pirn holders of this type involve not only the initial cost but also the cost of repeatedly, and relatively frequently, applying and removing the auxiliary holders.

Accordingly, it is the object of the present invention to produce an improved pirn or cone holder of the type set forth which is less expensive to make and, more particularly, to produce a pirn holder which is less expensive to apply and remove.

These and other objects are attained by my invention as set forth in the following specification and in the accompanying drawings in which:

Fig. 1 is a side elevational view of a pirn or cone holder embodying my invention.

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Fig. 2 is an enlarged section on line 2—2 on Fig. 1.

Fig. 3 is an enlarged section on line 3—3 on Fig. 1.

Fig. 4 is similar to Fig. 1 but shows a cone mounted on the auxiliary holder.

Fig. 5 is a fragmentary perspective view of the left hand portion of Fig. 1.

Fig. 6 is an exploded, perspective view showing the auxiliary holder about to be applied to the main holder.

Fig. 7 is a fragmentary perspective view of the left hand portion of Fig. 6 showing the first step in applying the auxiliary holder to the main holder.

Fig. 8 is an end elevational view similar to Fig. 1 also showing the first step in applying the auxiliary holder to the main holder.

Fig. 9 is a side elevational view similar to Fig. 1 and showing the second, and last, step in applying the auxiliary holder to the main holder.

The holder shown in the drawing includes a shank 10 which is secured at the inner end thereof to a support 12.

For supporting a bobbin or other yarn carrying device having a cylindrical bore, the shank is provided with two or more bowed springs 14 which are mounted longitudinally of the shank with their outer ends engaging the opposite ends of a through hole 16 formed in the shank and with their inner ends freely slidable in grooves 18 formed in the inner end of the shank. The inner ends of the springs 14 are retained in position by means of a collar 20. The parts thus far described are used in the manner shown in Fig. 1 of the Lambach patent and form no part of the present invention.

In order to adapt the holder for receiving and retaining a cone or other yarn carrying device, an auxiliary holder or cage, is provided. This cage, which is best shown in Fig. 6, includes a hub 22 to which the outer ends of auxiliary bowed springs 24 are permanently secured as at 26, and a disc 28, having T-shaped lugs 30 which are adapted to be slidably engaged by the slotted ends 32 of springs 24. The hub 22 is provided with a generally U-shaped opening 34 which extends from the periphery to the center of the hub and which is large enough to receive the outer end of the shank. The wall defining opening 34 is provided with a groove 36 for receiving a spring 38 which is adapted to engage groove 40 at the end of shank 10 as shown in Figs. 2 and 9. The disc 28 is provided with a keyhole opening formed of a central round portion 42 and a straight por-

tion 44 which leads from the central opening to the periphery of the disc.

The central portion 42 of the keyhole opening is large enough to receive the shank 10 but the straight portion 44 is too small to receive the shank. See Fig. 3. Therefore, the inner end of the shank 10 is grooved as at 46 so as to pass through the straight opening 44 and thus permit entry of the shank into the central opening 42 of the disc. See Figs. 3 and 9.

When it is desired to use the auxiliary holder, it is merely necessary to pass the grooved portion 46 of the shank through opening 44 into opening 46, and then to move the auxiliary cage to the left, as viewed in Figs. 6 and 9, until the groove 40 at the other end of the shank registers with the spring 38 in opening 34. When the parts are in this position, the hub 22 is moved toward the shank until the horse shoe shaped portion of spring 38 encircles the major portion of the circumference of the shank as best shown in Fig. 2. It will be noted that the distance between the grooves 40 and 46 is less than the distance between groove 36 in the hub 22 and the disc 28. Therefore, when groove 40 is engaged by spring 38, groove 46 will be spaced from disc 28, as best shown in Figs. 1 and 9. In this position of the parts, the inner end of the cage can not be lifted off the shank because the portion of the shank engaged by round opening 42 is too large for straight opening 44. At the same time, the spring 38 in hub 22 detachably engages the groove 40 at the outer end of the shank to prevent any longitudinal movement of the auxiliary cage relative to the shank and to prevent unintended removal of the auxiliary cage from the shank. It will be seen that when the holder is in the fully assembled position of Figs. 1 and 4 the auxiliary cage, formed of hub 22, springs 24 and disc 28, is freely rotatable on shank 10. This facilitates inspection of the yarn 48 carried by cone 50.

To remove the auxiliary cage, it is merely necessary to pull the hub 22 away to disengage the spring 38 from the groove 40 and then to slide the cage, to the left as shown in Fig. 9, until the groove 46 registers with straight opening 44 in which position the other end of the cage can be detached by moving the disc to the right as viewed in Fig. 8.

The springs 24 are preferably serrated as at 52 for better engagement with the interior of the cone 50 which is usually made of cardboard or other frictional material.

The ends of the springs 24 are bent as at 54 so that when the springs are compressed the turned up end 54 will slide freely against the tapered surface of collar 20.

What I claim is:

1. A device of the character stated including, a shank having a first annular groove near a first end thereof and a second annular groove near a second end thereof, a first compressible support carried by said shank for supporting a yarn carrier having a substantially cylindrical bore, a second compressible support for supporting a yarn carrier having a substantially conical bore, and mounting means for detachably applying said second support to said shank, said mounting means including a first member located near said first end of said second support and having an opening leading from the periphery to the center thereof for freely receiving said shank, a spring in said opening for detachably engaging said first groove, and a second member located near said second end of said second support and having a keyhole opening formed therein and comprising a central portion large enough to freely receive the ungrooved portion of the shank, and an elongated portion leading from the periphery of the second member to said central portion, said elongated portion of said opening being only large enough for the passage therethrough of the shank, at said second groove.

2. The structure recited in claim 1 in which the distance between said grooves is less than the distance between said spring and the keyhole opening in said second member.

3. A device of the character stated, a shank having a first groove formed near first end thereof and a second groove formed near a second end thereof, a first compressible cage carried by said shank for supporting a first yarn carrier having a cylindrical bore, a second compressible cage formed of angularly bent elongated springs for supporting a second yarn carrier having a conical bore, said second cage including a hub at one end thereof, a disc at the other end thereof, means slidably connecting said springs to said disc, there being a key hole shaped opening formed in said disc with the round portion of said opening in the center of said disc and with the elongated, straight portion of the opening leading from the center portion to the periphery of the disc, the diameter of the center portion of said keyhole opening being large enough to freely receive the ungrooved portion of the shank and the width of the straight portion of said opening being large enough freely to receive the shank at said second groove, there being a generally U-shaped opening in said hub, and a groove formed in the wall defining said opening, and a generally U-shaped spring in said last mentioned groove for detachably engaging said shank at said second groove.

4. The structure recited in claim 3 in which the springs forming said second cage are serrated for better engagement with the yarn carrier and in which the distance between the grooves in the shank is smaller than the distance between the keyhole in said disc and the spring in said hub.

5. The structure recited in claim 3 in which said elongated springs are exteriorly roughened for engagement with said second yarn carrier.

6. A device of the character stated including, a shank having a first annular groove near a first end thereof and a second annular groove near a second end thereof, a first compressible support carried by said shank for supporting a yarn carrier having a substantially cylindrical bore, a second compressible support for supporting a yarn carrier having a substantially conical bore, and mounting means for detachably applying said second support to said shank, said mounting means including a member carried by one end of said second compressible support and having a keyhole opening formed therein and comprising a central portion large enough freely to receive the ungrooved portion of the shank and an elongated portion leading from the periphery of said member to said center portion, said elongated portion being only large enough for the passage therethrough of the shank at said second groove.

EDWARD J. McBRIDE.

No references cited.