Jan. 14, 1964 W. P. ROSE 3,117,740

REMOVABLE CLOTH DYEING JIG BEAM

Filed April 19, 1962

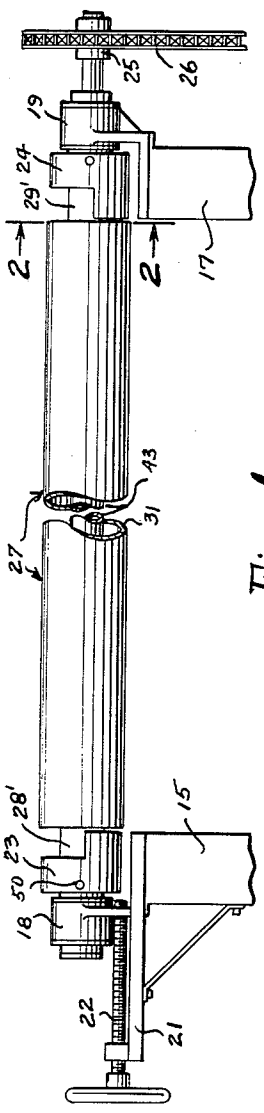


Fig. 1

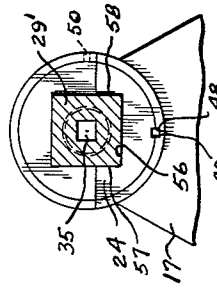


Fig. 2

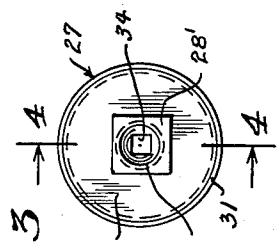


Fig. 3

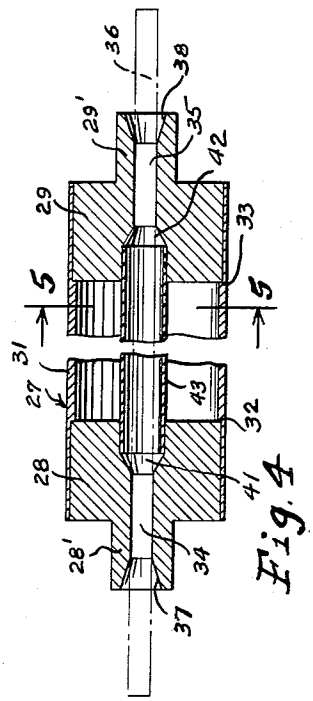


Fig. 4

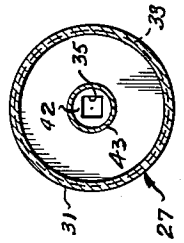


Fig. 5

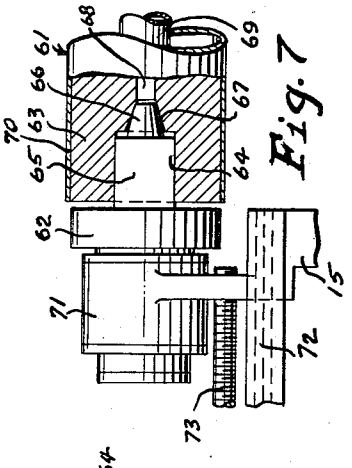


Fig. 7

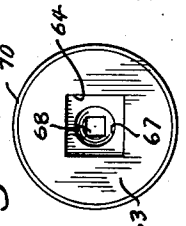


Fig. 8

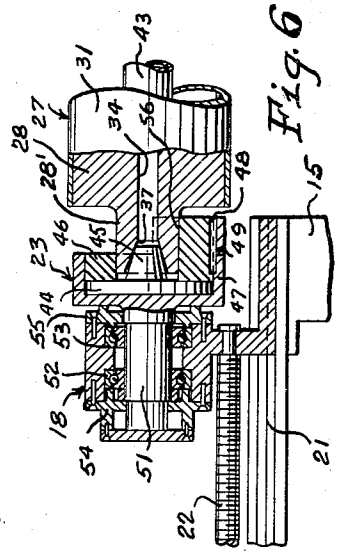


Fig. 6

INVENTOR.
WERNER P. ROSE,

BY L. S. Saulsbury
ATTORNEY

United States Patent Office

3,117,740

Patented Jan. 14, 1964

3,117,740
REMOVABLE CLOTH DYEING JIG BEAM

Werner P. Rose, Oakland, N.J.
(183 Autumn St., Passaic, N.J.)

Filed Apr. 19, 1962, Ser. No. 188,707
1 Claim. (Cl. 242—68.4)

This invention relates to a removable beam for use with cloth dyeing jigs.

This application is a continuation-in-part of my application, Serial No. 686,238 filed September 25, 1957, now Patent No. 3,038,680, in which there has been claimed in combination with a cloth dyeing jig a chuck cutaway at its top part to receive the square ends of the present removable beam and conical projections within the chucks that are adapted when closed upon the ends of the beam to enter conical recesses therein so as to center the beam for even running in the dyeing jig. The present application will be directed to the beam by itself.

It is the principal object of the present invention to provide a removable beam for use in cloth dyeing jigs that while made to be adaptable for use in a jig having chucks for receiving square ends thereof, it may also be used by the insertion of a square drive rod therethrough as a standard wood roll commonly used in present day cloth dyeing jigs without chucks and other preceding and following processing equipment such as beamers, frames, peddlers, calenders etc.

It is another object of the invention to provide a removable dyeing jig beam in which the beam will be so constructed that an easy insertion of the square bar into the beam will be had by provision therein of an internal guide tube extending within the beam between end head members having conical surfaces at the square openings in the respective head members with which the bar has a driving relationship.

It is still another object of the invention to provide a removable beam for cloth dyeing jigs having square ends for receiving opposing chucks in which absolute centering of the beam upon the chuck cones will be had.

Other objects of the invention are to provide in a removable dyeing jig beam, having the above objects in mind, which is of simple construction, inexpensive to manufacture, made of metal, light in weight, easy to handle, interchangeable, strong, true running, efficient and effective in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

FIGURE 1 is an enlarged fragmentary and side elevational view of the removable beam dyeing jig bearing opposing chucks and the removable beam of the present invention disposed and drivingly connected therebetween,

FIG. 2 is an enlarged vertical sectional view taken through one of the square ends of the beam and looking in full elevation upon the end face of the cutaway chuck of the jig, the view being taken on line 2—2 of FIG. 1,

FIG. 3 is an end elevational view of the removable beam,

FIG. 4 is a fragmentary longitudinal sectional view of the removable beam as viewed on line 4—4 of FIG. 3 with illustration made as to the manner in which the square bar is used to handle the beam as a wood roll,

FIG. 5 is a vertical sectional view of the removable beam as viewed on line 5—5 of FIG. 4,

FIG. 6 is an enlarged fragmentary longitudinal sectional view of the cutaway chuck and of one end of the removable beam centered therein,

FIG. 7 is a fragmentary view of a modified form of the removable beam as the beam is centered on the chuck cone, and

FIG. 8 is an end elevational view of the modified removable beam shown in FIG. 7.

In the above-mentioned patent application, there is made a full showing of a cloth dyeing jig of the type in which this present beam is used and of severeal views of the beam, and now presently shown in this application but in addition, there has been added as in FIGS. 7 and 8, a modified beam construction and the angle of the conical surfaces in the ends of the beam being enlarged to have circular line contact, rather than full conical face area, with the cones of the chuck, whereby absolute centering of the beam within the opposing chuck is effected. In FIGS. 1, 2 and 6, there are shown upright projections 15 and 17 of a cloth dyeing jig that respectively carry bearing blocks 18 and 19, the bearing block 18 being adjustable in a guideway 21 by a hand adjusting screw 22 and supporting for rotation a cutaway chuck 23. At the other side of the dyeing jig, the bearing block 19 is fixed on the upwardly extending projection 17 and has journalled thereon a cutaway chuck 24 that is driven by a sprocket 25 and chain 26. The cutaway chucks 23 and 24 are adapted to receive and support a metal jig beam 27 constructed according to the present invention with end heads 28 and 29 by their squared end extensions 28′ and 29′ that are received and centered in the respective chucks 23 and 24. The bearing block 18 having the chuck 23 is adjusted by the hand screw 22 toward the chuck 24 and the fixed bearing block 19.

The squared ends 28′ and 29′ are formed upon the respective end heads 28 and 29, which heads are fitted in the ends of a beam sleeve 31 abutting respectively shoulders 32 and 33 formed on the sleeve. The beam end heads 28 and 29 and the sleeve 31 are of metal and they are tightly fitted together or secured in any well known manner to form a rigid light weight structure. These end heads 28 and 29 are respectively provided with square openings 34 and 35 for receiving a square bar 36 when the beam is to be used as a wood roll. The square drive bar 36 can be led through the beam and the square openings 34 and 35 by insertion into a conical starting opening 37 or 38 of the squared end extension of either beam head 28 or 29.

In order that the square drive bar 36 can be easily led from one end head to the other within the beam, the inner faces of the respective heads 28 and 29 are formed with countersunk recesses 41 and 42 and are joined together by a central internal bar guide tube 43 slightly larger in diameter than the bar 36 and such as to receive the diagonal corners thereof. The bar ends on passing the ends of the tube 43 are guided along the conical surfaces of the countersunk recesses 41 and 42 into the respective square openings 34 and 35 of the end heads. Thus it will be seen that the square bar 36 can be passed through the beam with little interference and as if the beam were solid with a single axial hole extending through the same.

The cutaway clutches 23 and 24 respectively have a circular plate 44 that has a cone projection 45 and an inner clutch member 46 with a square opening for receiving the squared end 28′ or 29′. The inner clutch member 46 is cutaway and is held against rotational and axial displacement in an outer shell 47 by a key 48 and a set screw 49 that forces the key into a keyway in the inner member 46 and holds it against axial displacement therefrom. The plate 44 bearing the cone 45 is held against rotational displacement by a set screw 50. The base of each clutch 23 and 24 has a shank 51 that is carried in roller bearing assemblies 52 and 53 in the bearing block 18 and are respectively held therein by respective end plates 54 and 55.

As will be best observed in FIG. 6 the cone projection 45 is of less diameter than the conical end opening 37

in the beam end extension 23'. The outer chuck sleeve portion 47 is cutaway as also is the inner chuck member 46 so that the square ends of the beam can be rested on square bottom 56 of inner member 46 prior to the chuck being moved and the beam extended into the square openings of the inner chuck members. The sides of the inner chuck members are built up from the bottom opening as best seen at 57 and 58 in FIG. 2.

In FIGS. 7 and 8, there is shown a beam 61 and a chuck 62 that are constructed differently. According to this form of the invention, the beam 61 has an end head 63 with a large square end opening 64 that loosely receives a square projection 65 of the chuck 62 and which has a conical extension 66 that is adapted to enter a conical surface 67 corresponding to the conical surface 37 or 38 of the beam 27 leading from a square bar opening 68 in the head 63 and to which there is aligned a central guide tube 69 and with main sleeve 70 in the same manner as best illustrated in FIG. 4 of the first form of the invention. The internal surface of the conical opening 67 is of larger diameter than the surface of the cone extension 66 and with the looseness in the square opening 64, the beam can be centered as the chucks are adjusted to contain the beam 61. With this beam there is no rest for the beam in making the engagement with the chuck 62 as with the cutaway chucks used for the beam 27 of the first form of the invention. The chuck 62 is similarly journalled in a bearing block 71 that is adjustable in a guideway 72 by a hand adjusting screw 73. Both forms of the beam have the central tube for facilitating the extending of the bar 36 through the beam as when the beam is to be used as a wood roll.

It should now be understood that the openings in the chucks are slightly oversize and with the angles of the two conical surfaces being slightly different in order that the cone projections 45 and 66 can be readily accommodated in their respective conical openings in the ends of the beam and such that the ends of the conical projections will have circular line contact with the surfaces of the conical openings and so that absolute centering of the beam in the jig is effected.

It will also be apparent that not only as with the first form of the invention, the beam can be easily disposed in the chucks to be driven by them, and can be absolutely centered therein, but that by the provision of the central tube lying within the beam and extending between the squared end heads of the beam, a square

drive bar can be easily extended through the beam without interference or obstruction and as if being extended through a central bore of a solid beam.

It will be further apparent that there has been provided a beam adapted for use with cloth dyeing jigs, which is light in weight, readily interchangeable with the dyeing jig, can replace the standard wood beam, will be true running, and inexpensive to manufacture.

While various changes may be made in the detailed construction of the beam, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claim.

What is claimed is:

A removable beam for cloth dyeing jigs and other cloth treating apparatus, said beam comprising an elongated cylindrical beam sleeve, beam heads having cylindrical bodies fitted in the ends of the sleeve and closing the same, integral extensions on the cylindrical bodies, said extensions having conical openings in the outer ends thereof, each cylindrical body and adjacent end extension having a square axial opening terminating at one end at the inner end of the adjacent conical opening and at its other end in a conical countersunk portion, in the cylindrical body, and an elongated tube extending longitudinally through the center of the sleeve from cylindrical body to cylindrical body in axial alignment with the square openings therein, the ends of the tube being fitted in the conical countersunk portions of the openings in the cylindrical bodies, said conical opening and said conical countersunk portion of the opening in each cylindrical body being adapted to receive and guide the leading end of a square driving bar inserted through either cylindrical body and tube, the end extensions being square in cross section to be received in chucks of a jig having square socket openings, said central tube being adapted to guide the movement of the driving bar during insertion.

References Cited in the file of this patent

UNITED STATES PATENTS

1,545,661	Johnson	July 14, 1925
1,555,184	Choate et al.	Sept. 29, 1925
1,960,452	Parsons	May 29, 1934
2,208,545	Mackey	July 16, 1940
2,491,917	Brouwer et al.	Dec. 20, 1949
2,625,335	Atwood	Jan. 13, 1953