June 24, 1930. F. E. BANFIELD, JR., ET AL 1,766,585

DRIVING CYLINDER FOR SPINNING FRAMES

Filed March 25, 1926

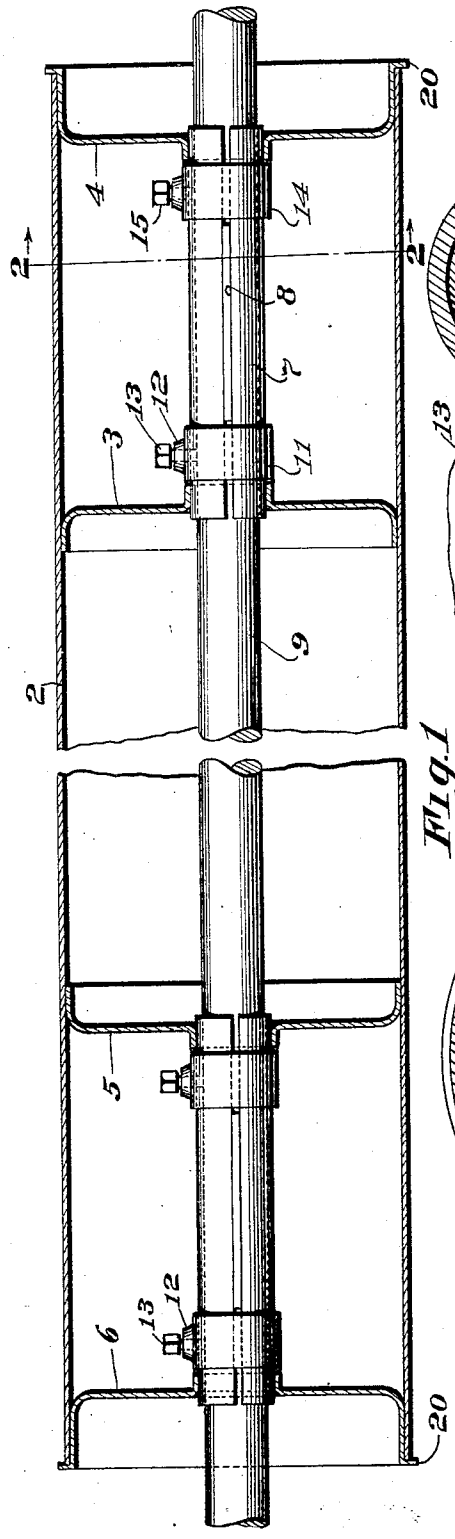



Fig. 1

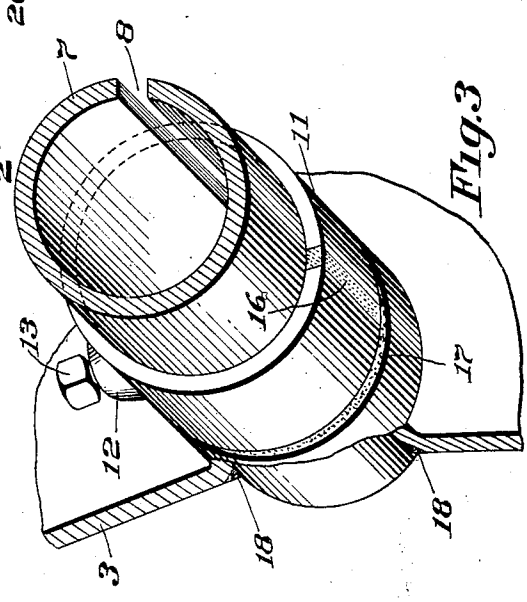



Fig. 3

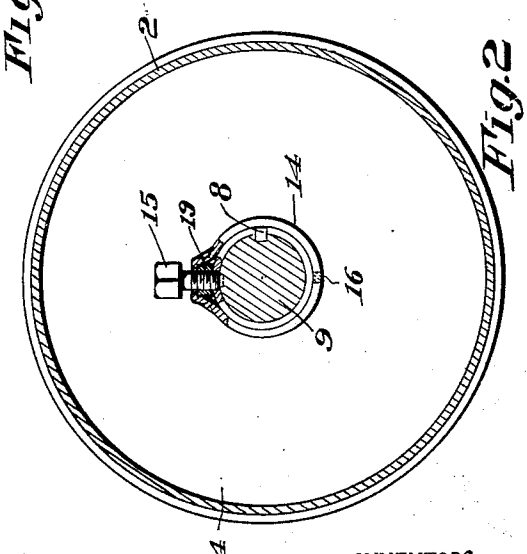



Fig. 2

INVENTORS
Fredric E. Banfield, Jr.,
and
BY Frank O. Hoagland,
their ATTORNEY.

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# UNITED STATES PATENT OFFICE

FREDERIC E. BANFIELD, JR., OF SACO, MAINE, AND FRANK O. HOAGLAND, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO SACO-LOWELL SHOPS, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

## DRIVING CYLINDER FOR SPINNING FRAMES

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This invention relates to the driving cylinders for spinning and twisting frames and similar machines.

The spindles of a spinning or twister frame are usually driven from a long horizontal drum which extends nearly the entire length of the machine. Such a drum often consists of a tin cylinder supported on cast metal heads. It is desirable to make this drum as light as possible, consistent with the requisite strength, since a light weight cylinder carries less momentum and can, therefore, be started and stopped more quickly.

The present invention aims to improve the construction of driving cylinders of this type with a view to devising a strong, sturdy construction which will, nevertheless, be extremely light in weight. It is also an object of the invention to devise a construction of this character which can be manufactured economically.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

In the drawings,

Figure 1 is a view partly in vertical cross-section and partly in elevation, of a driving cylinder constructed in accordance with this invention;

Fig. 2 is a cross-sectional view on the line 2—2, Fig. 1; and

Fig. 3 is a perspective view on a larger scale showing certain details of the construction shown in Fig. 1.

Referring first to Fig. 1 it will be seen that the construction there shown comprises a tin or sheet metal cylinder 2, the opposite end portions of which are supported on two hubs. One of these hubs comprises two cupped heads 3 and 4, while the other includes similar cup-shaped heads 5 and 6. The two heads 3 and 4 preferably are made by the punch and die process from sheet steel of a suitable thickness. These pressed steel heads are mounted on the opposite ends of a split sleeve 7 which, as shown, consists of a piece of sheet metal rolled into a tubular form with its longitudinal edges separated by a slot 8. This sleeve fits on the driving shaft 9, and the slot 8 is of suitable width to receive a key which compels this sleeve to rotate with the shaft 9. Fitting on the sleeve 7 immediately beside the head 3 is a split sheet metal collar 11 which is raised or thickened at its upper side, as shown at 12, to receive a set screw 13. A similar collar 14 equipped with a set screw 15 is provided at the opposite end of the sleeve.

In manufacturing the hub parts are assembled in the relationship shown and the split in the collar 11 is then closed by welding, as indicated at 16, Figs. 2 and 3. Preferably in assembling a slight space is left between the collar 11 and the central flange of the head 3, and this space is also closed by welding, as indicated at 17, Fig. 3. It is preferable, also, to weld the head 3 to the sleeve at 18, Fig. 3. The same welding operations are performed on the collar 14 and head 4 so that when this hub is completed it may be considered as a one-piece construction since the sleeve, collars and heads are all united by welding. This hub, therefore, possesses great strength and rigidity while being very light in weight.

The collars 11 and 14 serve to strengthen and reinforce the sleeve 8, while also providing additional metal for the reception of the set screws 13 and 15. These set screws are tapped through the walls of the collars and sleeves and they secure the hub in the desired position longitudinally of the shaft 9. Instead of threading the walls of the collar and sleeve, a socket may be formed in the thickened portion of the collar to receive a nut 19, Fig. 2, of a standard size through which the set screw may be threaded.

The hub comprising the heads 5 and 6 is exactly like the hub construction above described except that the two heads are reversed in position.

Preferably one or both of the heads 4 and 6 at the oposite ends of the cylinder is provided with a radial lip 20 extending circum-

ferentially around it and against which one end of the sheet metal cylinder 2 abuts. The cylinder is supported on the peripheral portions of all the heads and additional heads or hubs may be used between the two end hubs shown wherever desired to give the requisite support to the sheet metal cylinder 2. It is obvious that the number of the heads or hubs used will depend upon the length of the cylinder.

It will now be appreciated that this invention provides a simple construction which can be manufactured economically and which, while being strong and sturdy, is, nevertheless, very light in weight. The fact that each hub includes two heads both rigid on a sleeve is of advantage in assembling, it facilitates accurate alinement and it contributes to the production of a smooth true driving surface.

While we have herein shown and described the best embodiment of our invention that we have so far devised, it will be understood that the invention may be embodied in somewhat different forms without departing from the spirit or scope thereof.

Having thus described our invention, what we desire to claim as new is:

1. A hub for a sheet metal driving cylinder including a sleeve comprising a strip of sheet metal rolled into a tubular form with its longitudinal edges separated by a distance suitable to receive a driving key, two cupped sheet metal heads welded on said sleeve and spaced from each other, and two collars on said sleeve immediately beside the respective heads, said collars being welded to said sleeve and to their respective heads.

2. A driving cylinder of the character described, comprising a driving shaft; a plurality of the hubs mounted on said shaft to revolve therewith; each of said hubs including a split sleeve fitting on said shaft and two cupped sheet metal heads welded on said sleeve and spaced from each other, each of said hubs also including two collars mounted, respectively, beside said heads and on said sleeve, said collars being welded to said sleeve; and a sheet metal cylinder encircling said hubs and supported on the peripheral portions of said heads.

In testimony whereof we have hereunto signed this specification.

FREDERIC E. BANFIELD, JR.
FRANK O. HOAGLAND.