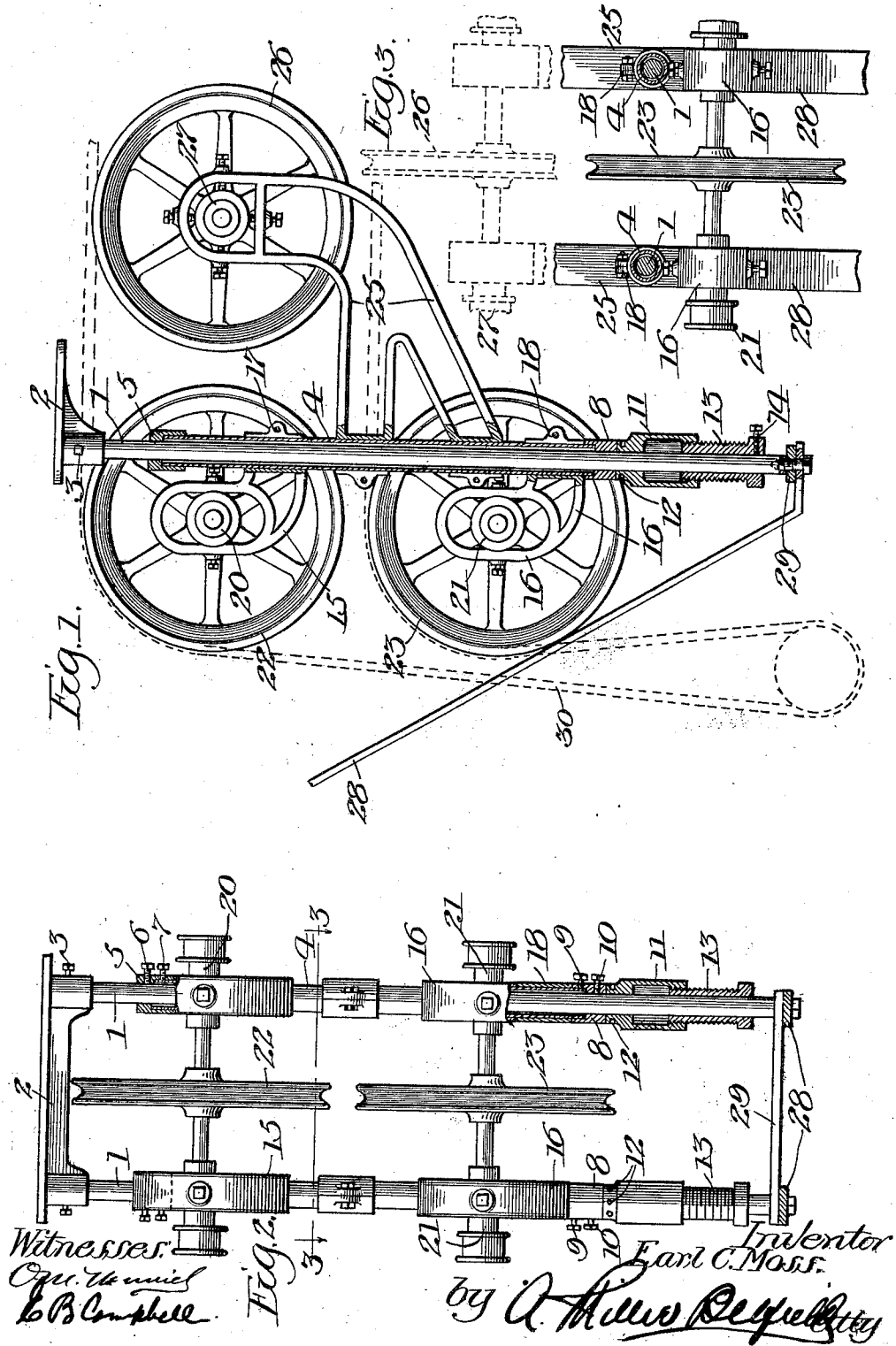


E. C. MOSS.
BINDER FRAME.

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1,030,675.

Patented June 25, 1912.



UNITED STATES PATENT OFFICE.

EARL C. MOSS, OF CHICAGO, ILLINOIS.

BINDER-FRAME.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EARL C. MOSS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Binder-Frames, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to binder frames for use in connection with power transmitting systems.

Prominent objects of the invention are to provide a simple, practical and efficient construction of binder frame, to arrange for the ready and easy adjustment of the same, to simplify the adjusting arrangements so as to require but little manipulation and few operations, to reduce the cost of construction, and to accomplish the foregoing and other desirable results in a simple and expedient manner.

The device of my invention, which I prefer to call a "binder frame," is especially adaptable to driving frames used in cotton and knitting mills, and is also adaptable to transmitting power for other purposes where the driving shaft is either at right angles to or parallel with the driven shaft.

While the frame is primarily designed to be hung from the ceiling, suitably stiffened with guy rods or forged braces, it may be placed on the floor, or, by slightly changing the ceiling plate, may be attached to posts, as will be apparent. By substituting belt pulleys in place of sheaves, any form of rubber, leather or canvas belt may be used; or, in place of using a single strand of cotton or manila rope or steel cable, a multiple number of wraps of rope or cable may be used, wound either on the American or English system. Where the frame is used in connection with the American system, it will be desirable to attach suitable brackets and bearings to support an idler sheave which will run on the back of the frame to bring the ropes from one outside groove to the other, as one continuous wrap of rope is used, these bearing supports or brackets to be placed and attached to the pipe or steel tubing and move with same when being adjusted. By "American system" I mean that the cable or belt or rope is continuous and only one cable or belt or rope is used. By "English system" I mean

the use of a plurality of parallel independent ropes.

In the accompanying drawing Figure 1 is a side elevation of a binder frame embodying my invention, with a part of the same shown in section. Fig. 2 is an end view thereof; and Fig. 3 is a horizontal section taken on line 3—3 in Fig. 2.

The binder frame shown in the drawings comprises in its general arrangement a frame consisting of two upright members and two horizontal members, and a pair of sheaves, or pulleys, carried by said frame.

The construction of frame shown comprises a pair of vertical bars, 1—1, which may be made of steel shafting, and a top member 2 in the form of a ceiling plate, extended between the tops of the two vertical members 1—1, and secured thereto by set screws 3—3, and capable of being secured to the ceiling for the attachment of the device. Tubes or sleeves 4—4 are arranged upon the vertical members 1—1, and are larger than the same, so as to permit ready sliding vertical movement or adjustment on said members 1—1.

As a preferred arrangement, the tubes 4—4 are appreciably larger than the members 1—1, so that there is an appreciable space between the two, as shown in Figs. 1 and 2, whereby there is no frictional contact or binding to retard or hinder the sliding movement of the tubes upon said members. At the tops of the tubes 4—4 are collars 5—5, provided with set screws 6—6 and 7—7 whereof the screws 6—6 are adjusted upon the members 1—1, and the screws 7—7 upon the tubes 4—4. At the lower ends of the tubes 4—4 are similar collars 8—8, having set screws 9—9 and 10—10, whereof the screws 9—9 adjust upon or against the tubes 4—4, and the screws 10—10 against the members 1—1. Below the collars 8—8 are chambered nuts 11—11, capable of rotation upon the members 1—1, and provided with apertures 12—12 for a wrench or turning bar. Below the nuts 11—11 are threaded plugs 13—13, held by set screws 14—14 upon the vertical members 1—1. By this arrangement it will be seen the sleeves or tubes 4—4 can be adjusted along the members 1—1 by turning the nuts 11—11 so as to cause them to move one way or the other upon the threaded plugs 13, to permit which adjustment the set screws 6—6 and 10—10 are first loosened, and then tightened after

adjustment is made. The adjustable sleeves 4—4 carry brackets 15—16, which have clamp sockets 17—18, by which they can be applied to and secured upon the sleeves 4—4. These brackets are provided with pivotally mounted bearings 20—21 for sheaves 22—23 respectively. Thus it will be seen that by adjusting the tubular members 4—4 upon the supporting members 1—1, the sheaves 22—23 can be adjusted to any desired position, either horizontal or inclined. The pivotal mounting of sheave shaft bearings permits the sheaves to take inclined positions with respect to the normal plane of said three sheaves as desired, by adjusting the members 4—4 dissimilarly.

When the adjustment is made to the full extent or capacity of the threaded plugs 13, those plugs can be shifted by loosening the screws 14—14 and changing their positions upon the members 1—1, so as to permit a further adjustment.

When desired, as for example where a multiple number of wraps of rope or cable are used, wound upon the American system, an idler sheave may be used. This is shown in the drawings. Brackets 25, 25 are attached to the adjustable tubes or sleeves 4, and provided with a sheave or idler 26, carried on a shaft running in bearings supported by the brackets 25, 25. Thus the idler 26 will be raised and lowered with the wheels 22, 23. The entire device can be made and completed, and used without the brackets 25, 25 and sheave 26, and in many cases it is desirable to do so.

Braces 28 are secured to the lower ends of the upright members 1—1 and extended upwardly at an inclination, so as to permit their being secured to the ceiling, to steady and support the device.

In tracing the path of the rope 20 through the sheaves of Fig. 1, the rope enters say from the right, engages the top of sheave 22, and about 90 degrees of the periphery of said sheave, travels downwardly to a sheave on a driving shaft, back from said last sheave over the top of sheave 23, and then runs toward the right parallel to the path of the rope when entering the sheave 22, the two free ends then encircling the sheave of some prime mover. When the idler 26 is used the rope, after leaving the sheave 22, passes around the idler 26, and then again over the sheave 22 as shown in dotted lines.

It will be understood that the device can be changed and modified to meet various conditions and circumstances, and that changes and alterations can be made without departing from the spirit of the invention.

What I claim is:

1. A device of the character specified, comprising a pair of sheaves or pulleys ar-

ranged one above the other, adapted to carry a power-transmitting belt or cable, adjustable members on opposite sides of said pulleys, each member supporting one side of each pulley, and each member being a rigid structure so that a movement of said member will move one side of both pulleys equally in the same direction, and means for adjusting said members.

2. A device of the class specified, comprising a frame having upright members, adjustable sleeves arranged upon said upright members, means for adjusting said sleeves, a pair of power transmitting sheaves or pulleys adapted to carry a power transmitting belt or cable mounted upon said sleeves, each sleeve carrying one side of each sheave or pulley, whereby an adjustment of either sleeve moves one side of both sheaves or pulleys equally in one direction, and means for attaching the device.

3. A device of the class specified, comprising a frame having two supporting members, adjustable members mounted upon said supporting members, and adjustable longitudinally of the same, means for adjusting said adjustable members on the supporting members, bearing brackets carried by the adjustable members, independently mounted power transmitting wheels or sheaves carried on said brackets, an adjustment of either adjustable member moving both of said pulleys in the same direction, and means for attaching said supporting members.

4. A device of the class specified, comprising a frame having two supporting members, adjustable members mounted upon said supporting members and adjustable longitudinally of the same, means for adjusting said adjustable members on the supporting members, bearing brackets carried by the adjustable members, said bearing brackets being adapted to support pulleys or sheaves, means for attaching said supporting members, and supplementary supporting brackets also carried by said adjustable members, and adapted to support an idler.

5. A device of the class specified, comprising upright supporting members 1—1, a cross ceiling member, 2, secured to the upper ends of the upright members 1—1, a cross piece 29 secured to the ends of said members 1—1, sleeves 4—4 arranged for sliding adjustment upon the members 1—1, collars 5—5 having set screws 6—6 adapted to engage members 1—1 and also having set screws 7—7 adapted to engage the tubular members 4—4, collars 8—8 at the lower ends of the tubular members 4—4, said collars 8—8 having set screws 9—9 and 10—10 for engaging the tubes 4—4 and members 1—1 respectively, and rotatable nuts 11—11 on the members 1—1 below the collars 8—8, threaded plugs 13—13 below the nuts

11—11, said plugs 13—13 being provided with means for holding them rigid with the members 1—1 means whereby said plugs may be adjusted longitudinally along said members 1—1, brackets 28—28 secured to the lower ends of the members 1—1, and adapted for exterior connection to hold the lower end of the device in place, and brackets 15—16 carried by the tubes 4—4 and adapted to support shafts for sheaves or pulleys.

6. A device of the class specified, comprising upright supporting members 1—1, a cross ceiling member, 2, secured to the upper ends of the upright members 1—1, a cross piece 29 secured to the ends of said members 1—1, sleeves 4—4 arranged for sliding adjustment upon the members 1—1, collars 5—5 having set screws 6—6 adapted to engage members 1—1 also having set screws 7—7 adapted to engage the tubular members 4—4, collars 8—8 at the lower ends of the tubular members 4—4, said collars 8—8 having set screws 9—9 and 10—10 for engaging the tubes 4—4 and members 1—1 respectively, and rotatable nuts 11—11 on the members 1—1 below the collars 8—8, threaded plugs 13—13 below the nuts 11—11, said plugs 13—13 being provided with means for holding them rigid with the members 1—1 means whereby the plugs may be adjusted longitudinally along said members 1—1, braces 28—28 secured to the lower ends of the members 1—1 and adapted for exterior connection to hold the lower end of the device in place, and brackets 15—16 carried by the tubes 4—4 and adapted to support shafts for sheaves or pulleys, and brackets 25—25 also mounted upon the tubes 4—4, and adapted to support a sheave or pulley.

7. A power transmission system of the class specified, comprising a set of pulleys or sheaves and a support therefor, said pulleys being mounted in tandem and forming parts of one transmission system, means for simultaneously and equally adjusting the said sheaves or pulleys comprising such set relative to said support, and at the same time maintaining their relative positions with reference to one another and means for adjusting said pulleys relatively to each other.

8. A device of the class described, comprising parallel standards, an adjustable sleeve surrounding and carried on each standard and a pulley carrying member surrounding and mounted on each adjustable sleeve.

9. A device of the class described, comprising a standard, a sleeve carried by said standard, means for fastening said sleeve in any desired position on said standard, means for adjusting the position of said sleeve on said standard, and a pulley carrying member adjustably mounted on said sleeve.

10. A device of the class described comprising parallel standards, a member carried on each standard and adjustable longitudinally of the same, and a plurality of pulley supports mounted on said member one above the other and adjustable longitudinally thereon, whereby the movement of said member adjusts each of said supports equally in the same direction.

In witness whereof, I hereunto subscribe my name this 23rd day of October A. D., 1908.

EARL C. MOSS.

Witnesses:

MAX W. ZABEL,
C. B. CAMPBELL.