

No. 649,158.

Patented May 8, 1900.

M. CAMPBELL.

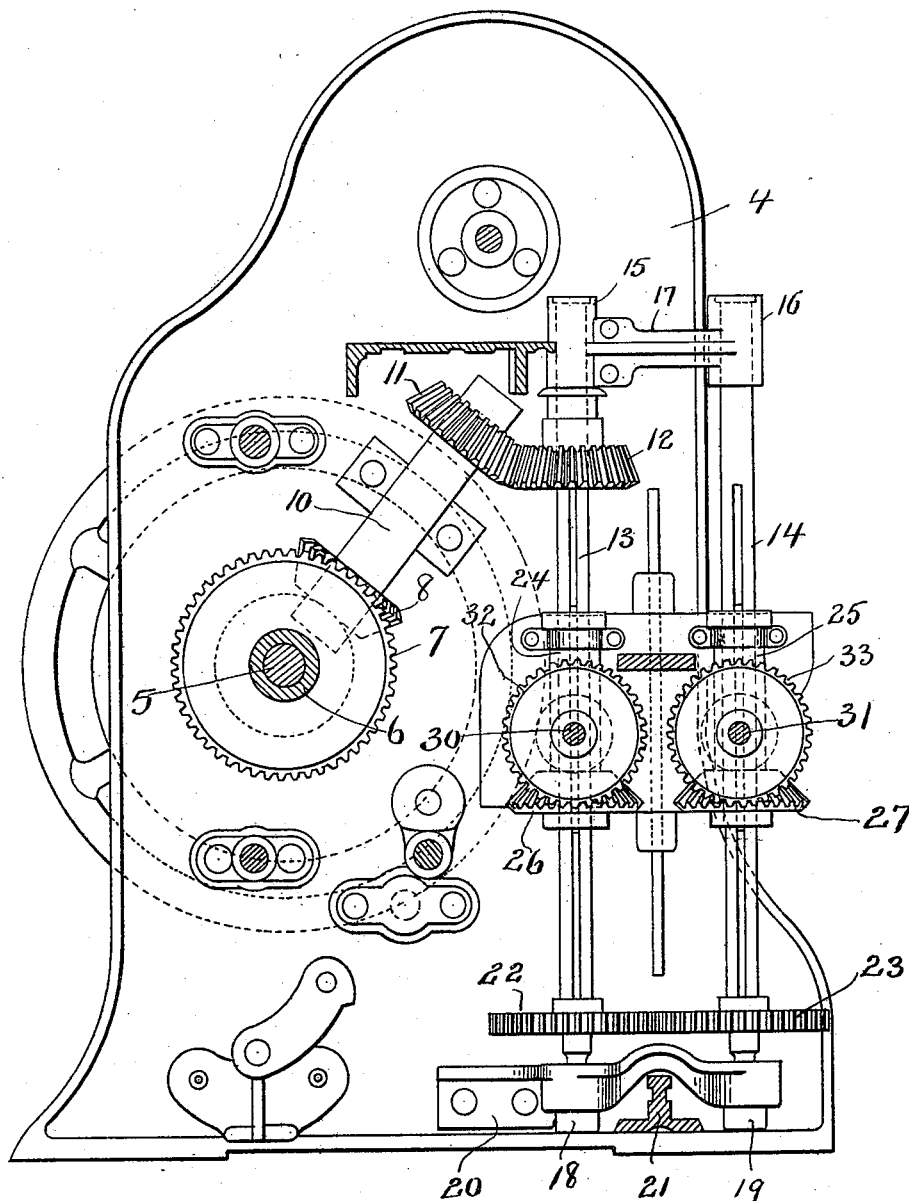
ROVING FRAME.

(Application filed Dec. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



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2 Sheets—Sheet 2.

Fig. 2.

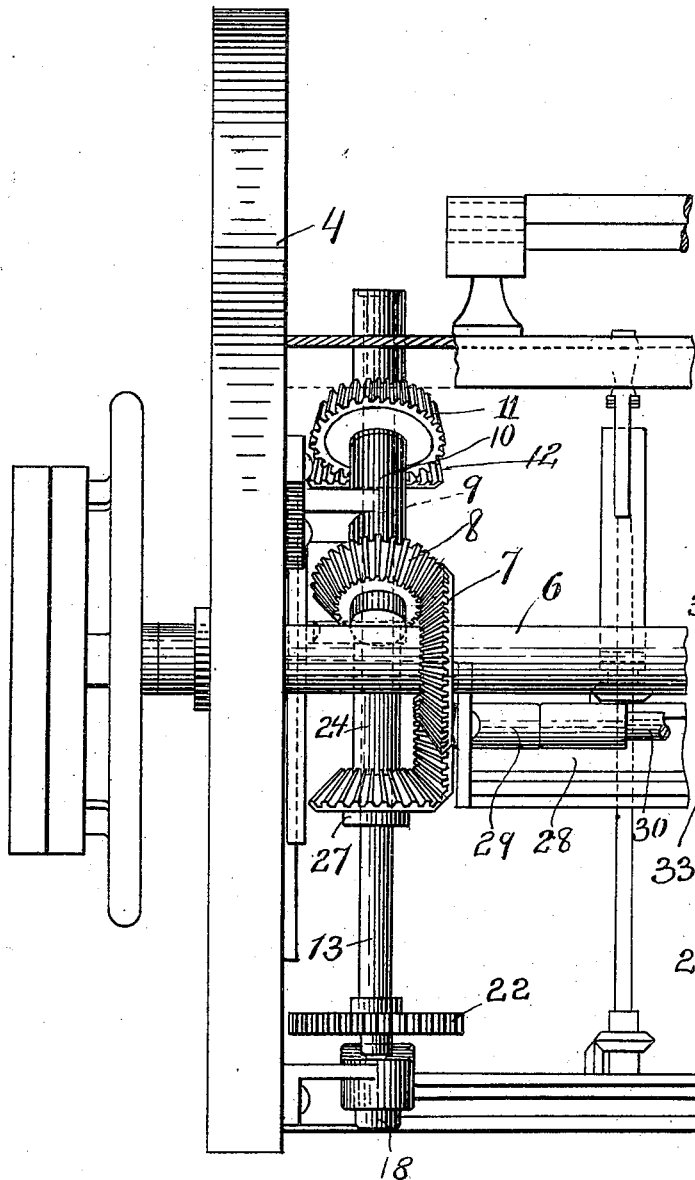
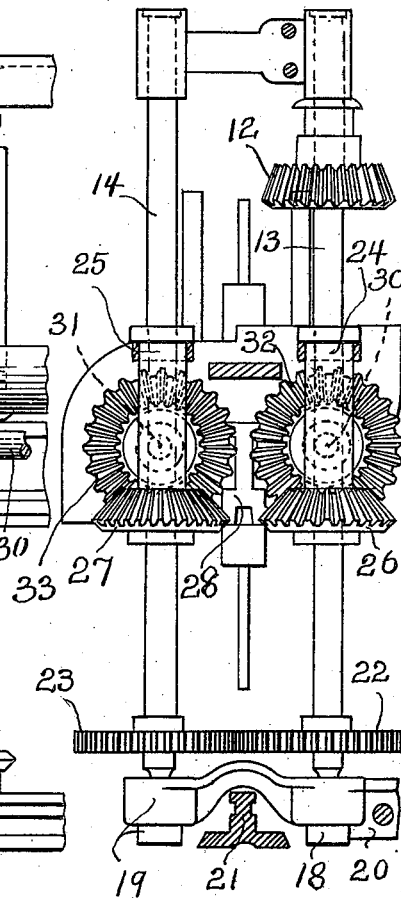


Fig. 3.



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UNITED STATES PATENT OFFICE.

MALCOLM CAMPBELL, OF BOSTON, MASSACHUSETTS.

ROVING-FRAME.

SPECIFICATION forming part of Letters Patent No. 649,158, dated May 8, 1900.

Application filed December 21, 1899. Serial No. 741,083. (No model.)

To all whom it may concern:

Be it known that I, MALCOLM CAMPBELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Roving-Frames, of which the following is a specification.

This invention has relation to roving or fly frames of the character of that shown in my earlier Patent No. 531,156, dated December 18, 1894, and has for its object to provide certain improvements in the mechanism for transmitting power to the bobbin-gears on the reciprocatory head.

The invention consists in the provision of twin upright shafts geared together at their lower end by straight spur-gearing, whereby power is transmitted from the one to the other. Each of the said shafts is longitudinally grooved to receive a sleeve, with which is compounded or connected a bevel-gear engaged with and driving a similar bevel-gear. The last-mentioned gears are mounted on horizontally - arranged shafts journaled in bearings on the reciprocatory head which carries the bobbins and bobbin-gears. It is from the horizontal shafts that the bobbin-gears are actuated. By reason of this construction it will be seen that each of the horizontal shafts is driven by a vertical shaft and that one of the said vertical shafts receives its power from the other by means of the straight spur-gearing, all as is shown upon the drawings and now to be described in detail, and particularized in the claim hereunto appended.

Referring to the drawings which illustrate the invention, Figure 1 represents a front-to-rear section showing the head end of a roving-frame equipped with my invention. Fig. 2 represents an elevation of the mechanism shown in Fig. 1. Fig. 3 represents the power-transferring mechanism in detail, being, in effect, a section through the machine looking toward the first samson.

Referring to the drawings, the head of the machine is indicated at 4, and the center or initial power-shaft, which is journaled in said head and extends lengthwise of the machine, is indicated at 5. On the said shaft is a suitably-driven sleeve 6, provided with a miter or bevel gear 7, engaging with and driving a similar gear 8 on an inclined shaft (indicated in dotted lines at 9) and journaled in a bear-

ing 10, secured to the head 4. On the upper end of the last-mentioned shaft is a bevel or miter gear 11, engaged with and driving a similar gear 12 on an upright shaft 13. Arranged in proximity to the shaft 13 there is a second shaft 14, which is parallel thereto, said shafts being journaled at their upper ends in bearings 15 and 16, formed on the bracket 17, attached to the head 4. The lower ends of the said shafts are stepped in bearings 18 19, carried by a bracket 20, attached to the head and formed with an arch to take over the lower step-rail 21. At the lower ends of the shafts are rigidly secured spur-gears 22 23, whereby the shaft 14 is actuated by the shaft 13, but rotates in an opposite direction to the direction of rotation thereof.

The shafts 13 14 are longitudinally grooved, and on them are splined sleeves 24 25, formed with bevel or miter gears 26 27, respectively. The reciprocating bobbin-rail is indicated at 28, and to it are attached the bearings for the spindle-driving shafts and the bobbin-gears. Mounted in bearings 29, carried by the rail 28, are horizontal parallel shafts 30 31, which actuate the bobbin-gears. On the ends of the shafts are bevel-gears 32 33, which intermesh with the gears 26 27, respectively. By this construction and arrangement it will be seen that power is transmitted directly from the shaft 13 to the horizontal shaft 30 on the reciprocating frame through the bevel-gears 26 and 32 and that the power is transmitted to the shaft 31 from the vertical shaft 13 through the medium of the straight toothed gearing 22 23, the shaft 14, and the miter-gears 27 33. In this way the only work to be performed by the miter-gear 26 is the driving of the single shaft 30, whereas in previous constructions said gear was relied upon to drive both shafts 30 and 31.

By the present arrangement a much more stable construction is effected, and the power for driving the two shafts 30 and 31, which rotate the bobbins, is transmitted directly from the shaft 13 to each. Moreover, the load upon the reciprocatory head is materially lessened, and the power required to lift it may be correspondingly reduced.

Having thus explained the nature of the invention and described a way of constructing and using the same, although without having

attempted to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

5 A machine of the character described comprising driving mechanism, a reciprocatory frame, two parallel horizontally - arranged shafts carried by said frame for rotating the bobbin-gears, two vertically-stationary parallel upright shafts of which one is geared to
10 the driving mechanism, intermeshing spur-gears rigidly secured to and supported by said

upright shafts, whereby one of said shafts is driven by the other, and independent gearing for connecting each of the upright shafts with its corresponding horizontal shaft.

15

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

MALCOLM CAMPBELL.

Witnesses:

MARCUS B. MAY,
C. C. STECHER.