March 4, 1930. L. JOHNSON 1,749,431

ROLL TABLE

Filed Jan. 20, 1927

Fig. 1.

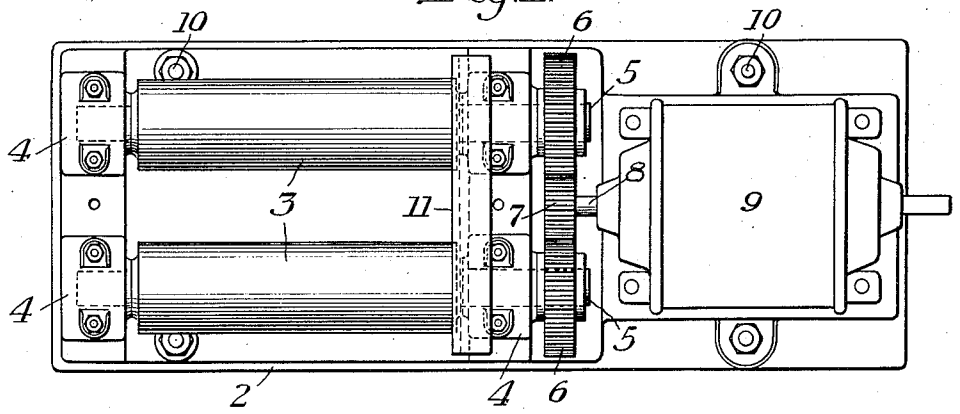


Fig. 2.

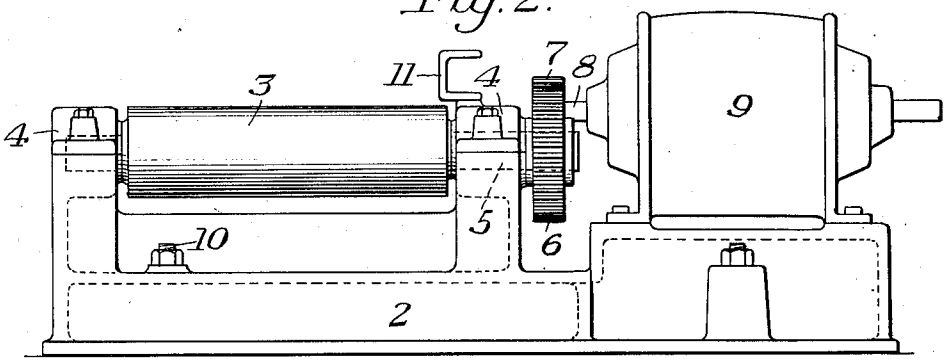
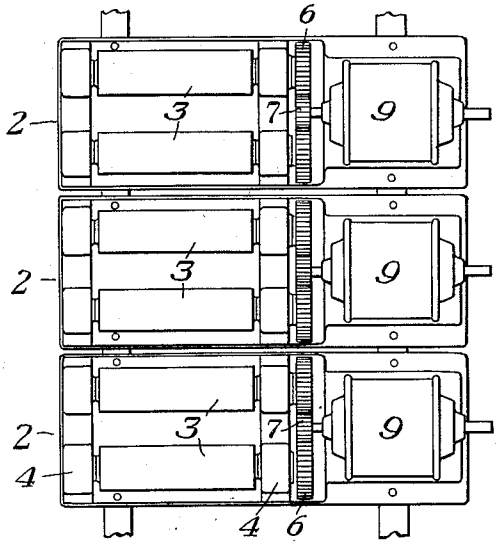


Fig. 3.



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UNITED STATES PATENT OFFICE

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ROLL TABLE

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The present invention relates broadly to the art of conveyors, and more particularly to conveyors of a character commonly used in steel mills and designated as roll tables. Such tables are frequently of considerable length and are designed for the handling not only of material at high temperatures, but also for the handling of extremely heavy sections. In some cases, the rolls constituting the table must present an irregular upper surface whereby the provision of a common jack shaft, and bevel gears for driving the rolls is made impracticable. In other cases, the length of the tables and the arrangement of rolls is such that the utilization of a single jack shaft is made impossible and the mounting of separate motors within the room allowed is extremely difficult, if not impracticable.

The present invention has for certain of its objects the provision of an improved roll table in which the rolls may be as closely arranged as desired and in which the necessary power for driving the same is available.

Another object of the present invention is to provide a roll table constructed of a plurality of individual sections removable or replaceable as such, and adapted to be assembled in any desired relation to give the general supporting contour desired in the particular operation contemplated. While in accordance with the preferred embodiment of the invention, each of the units will carry driving means for its respective rolls, it will be understood that certain of the units may carry idle rolls if so desired.

Another object of the present invention is to provide a sectional roll table enabling the length of the table produced from the sections or units to be varied at will as well as the contour provided by such assembly while maintaining an efficient driving means for the rolls.

In the accompanying drawings, there is shown for purposes of illustration only, a preferred embodiment of the present invention, it being understood that the drawings do not define the limits of my invention as changes in the construction, operation and assembly disclosed therein may be made without departing either from the spirit of the invention or the scope of my broader claims.

In the drawings:

Figure 1 is a top plan view of a single unit constructed in accordance with the present invention;

Figure 2 is a side elevational view of the construction shown in Figure 1, a side guard being illustrated in transverse section; and,

Figure 3 is a diagrammatic plan view indicating the manner of assembling a plurality of sections to form a conveyor.

In carrying out the present invention, there may be provided a plurality of base plates 2 of suitable size and construction with respect to the purpose to which they are to be put. Each of these base plates is adapted to have mounted thereon a pair of rolls 3 journaled at their opposite ends in suitable bearings 4. At one end, the roll necks 5 are shaped to receive pinions 6 adapted to be intergeared with and driven by a motor pinion 7 on the armature 8 of a suitable motor 9.

Each of the motors may be of any desired construction and mounted in any desired manner on the base plates in cooperative relation to the pinions 6 to be driven thereby. By suitably proportioning the sizes of the pinions 6 and 7, it will be apparent that an effective speed reduction is obtained, and at the same time, the required distance between adjacent rolls is reduced to a minimum as each motor may extend into overlapping relationship to the rolls of the unit driven thereby, while not projecting beyond the base plate in such manner as to interfere with the motors on adjacent units.

All of the units may be of similar construction and may be assembled to form a roll table of the desired length by securing the same to a suitable longitudinally extending supporting base, such, for example, as girders 11, 11, beams, or the like by bolts 10, see Fig. 3. By reason of the fact that each of the units is of comparatively narrow width, and that each unit is self-contained, it is possible to assemble the same to provide an irregular surface as may be required for example, in conveying shapes from a lower to a higher level or for con-

veying the same in succession to a series of pieces of apparatus designed to perform work on the sections carried thereby.

The motors may be driven in any desired manner, but in view of the established practices in mills of the character in which the present invention will be utilized, they may be conveniently driven by connecting the same in known manner to a motor generator set operative for driving the same at variable speeds as may be required.

It will be understood that in the completed structure, a suitable side guard 11 may be provided for cooperation with either or both ends of the rolls to serve as guiding means for the material supported thereon.

Certain advantages of the present invention arise from the provision of a roll table composed of a plurality of units, some or all of which may carry their individual driving motor.

Other advantages arise from the provision of a plurality of units arranged in side by side relationship and each comprising a plurality of rolls with a driving means common to the rolls of each unit.

Still other advantages of the invention arise from the provision of a unit for use in roll tables comprising a suitable supporting base with a pair of rolls mounted thereon in adjacent relationship and driven by a motor positioned at the ends of the rolls and in cooperative relation thereto.

Still further advantages arise from the provision of a conveyor of the nature referred to adapted to be readily assembled to provide the desired length and from the use of units permitting an irregular or non-symmetrical supporting surface to be provided.

I claim:

1. A roll table comprising a supporting base, a plurality of units mounted thereon and individually removable, each of said units comprising a pair of conveying rolls, gearing for driving the same, and a separate motor for the rolls only of each unit bodily removable therewith, the driving means of each unit being relatively disconnected from the supporting rolls of the other unit.

2. A roll table comprising a supporting base, a plurality of units mounted thereon, each of said units including a pair of rolls and driving means for said rolls, the driving means and rolls of any unit being bodily removable from assembled relation with other units while such units are in operation.

3. A bodily removable unit for roll table construction comprising a base plate, a plurality of rolls journaled therein, driving means on said base plate cooperating with all of the rolls of said unit, and means for securing the unit to a supporting base of a roll table.

4. A bodily removable unit for roll table construction comprising a base plate, a pair of rolls journaled therein, gears operatively secured to said rolls, a driving pinion intermediate said gears, and meshing therewith, a motor for said driving pinion, and means for securing the unit to a supporting base of a roll table.

5. A roll table comprising a longitudinally supporting base, a plurality of individual units assembled in side by side relationship on said supporting base, any of said units being interchangeable with any other of said units while the roll table is in operation, and a driving means and supporting roll on each of said units, adjacent units being relatively independent one from the other.

6. A roll table comprising a pair of longitudinally extending supports, a plurality of individual units secured to said supports and extending transversely thereof, each having a pair of supporting rolls and driving means therefor, all of said units being of similar construction interchangeable one with the other at will, the driving means of each unit being operatively disassociated from the driving means and supporting rolls of the other units.

7. A unit for roll table construction comprising a base plate, a plurality of rolls journaled thereon and extending lengthwise of said plate, and a motor for driving said rolls carried by said plate, said plate having a width substantially equal to the width of the bearing means for said rolls of a length as great as the length of the rolls and motor, the rolls and motor being symmetrically positioned relatively to the longitudinal axis of the plate and said motor being carried by said plate adjacent the ends of the rolls with its armature shaft substantially parallel to and intermediate adjacent rolls.

8. A unit for roll table built up of a plurality of units secured side by side to a supporting base, said unit comprising a base plate, a roll, a bearing for each end of the roll extending upwardly from the base plate, said plate extending beyond one of the bearings, a motor mounted on the extension of the base plate, driving connections between the motor and the roll, and means for securing the base plate to a roll table supporting base.

9. A unit for roll table built up of a plurality of units secured side by side to a supporting base, said unit comprising a base plate, a pair of rolls, a bearing for each end of each roll extending upwardly from the base plate, said plate extending beyond the bearings at one end of the rolls, a motor mounted on the extension of the base plate, driving connections between the motor and the rolls, and means for securing the base plate to a roll table supporting base.

10. A roll table, comprising a main supporting base, a plurality of individual units mounted thereon and each comprising an

auxiliary base adapted to be secured to the main base, each auxiliary base including roll bearings for a pair of supporting rolls and a motor support, a pair of supporting rolls mounted in said bearings, and an individual motor on said support operatively connected only to the pair of rolls mounted on the auxiliary base on which the motor is mounted.

11. A roll table, comprising a main supporting base, and a series of auxiliary bases secured thereto and each of similar construction, each of said auxiliary bases having bearing means for a plurality of rolls and having a supporting pad for a driving means, rolls in said bearings, and driving means on each pad operatively connected only to the rolls of its own unit.

12. A roll table, comprising a main base, a plurality of individual units mounted on said base and each including an individual supporting base detachably secured to the main body, all of said units being of similar dimensions and interchangeable one with the other, a supporting roll on each auxiliary base, and a driving means on each auxiliary base for its own supporting roll.

In testimony whereof I have hereunto set my hand.

LANE JOHNSON.