(No Model.) 2 Sheets—Sheet 1.

W. B. CHISHOLM, J. WALKER & E. H. MARTIN.

FEEDING DEVICE FOR ROLLING MILLS.

No. 311,229. Patented Jan. 27, 1885.

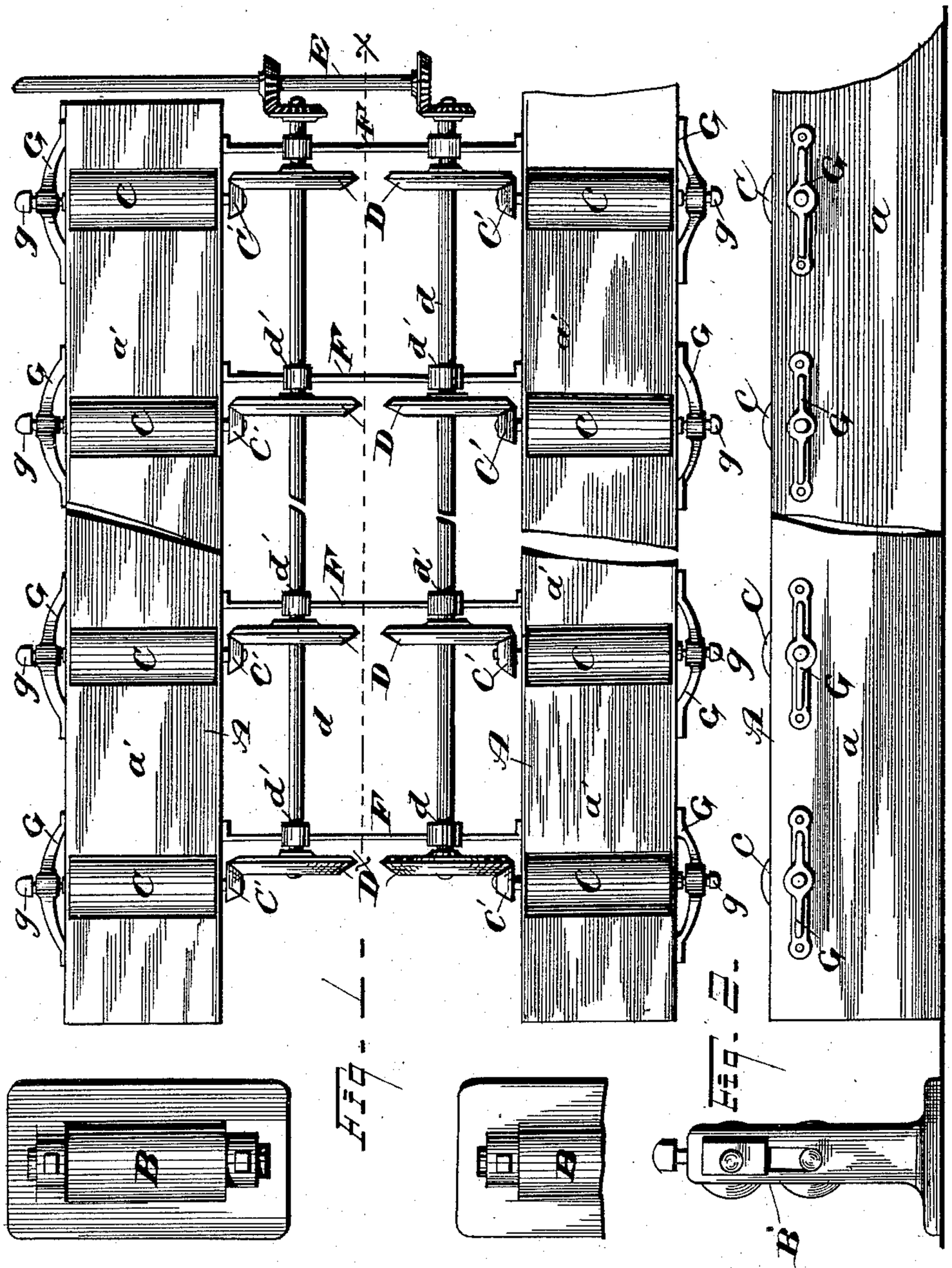

Fig. 1.

Fig. 3.

Fig. 2.

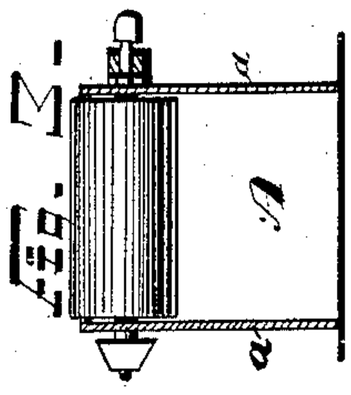

Fig. 4.

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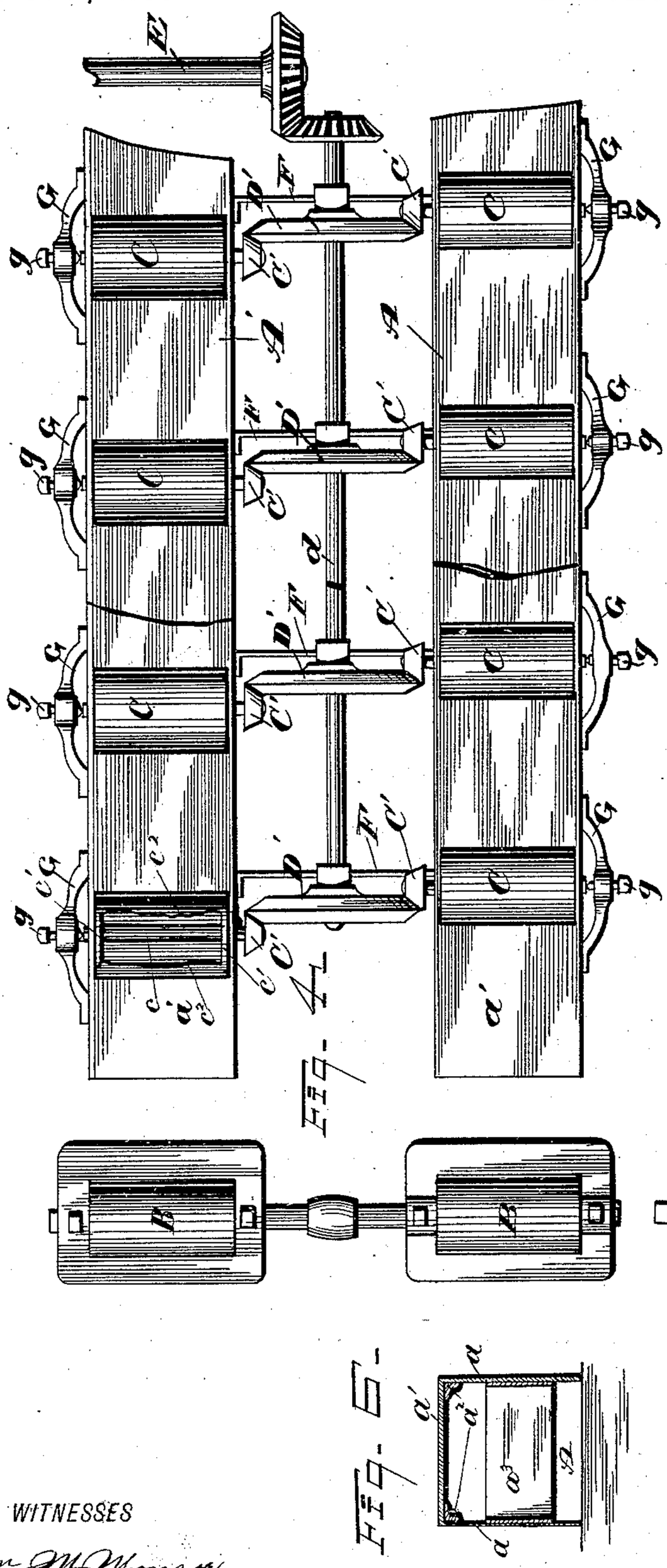

FIG. 1.

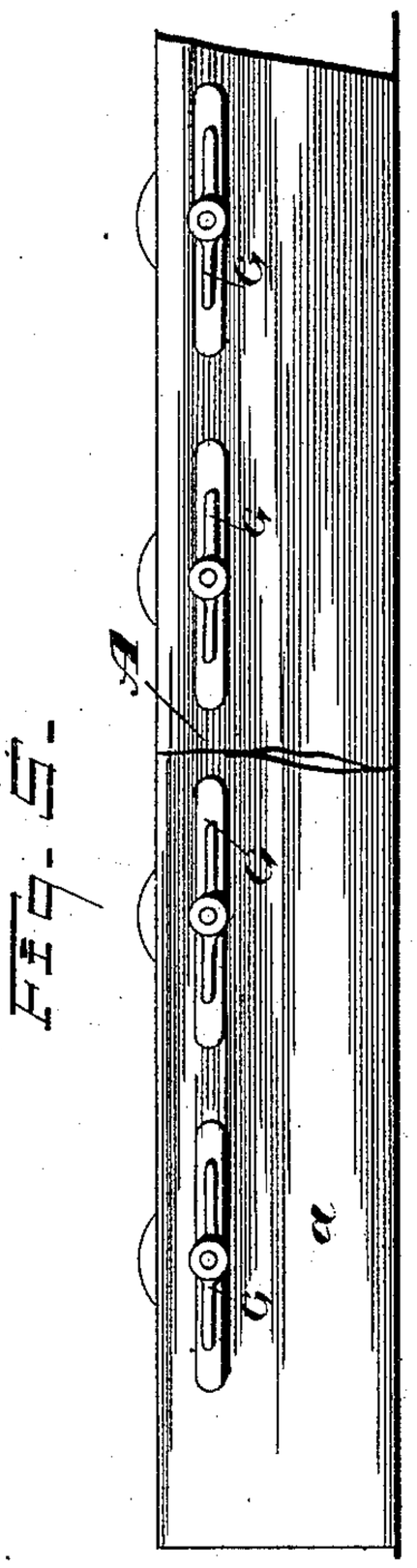

FIG. 2.

FIG. 3.

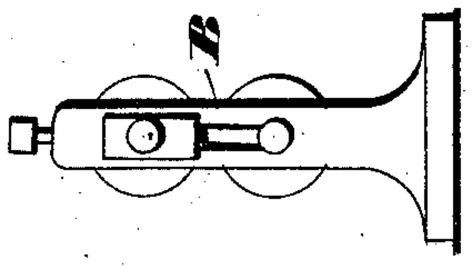

FIG. 4.

FIG. 5.

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UNITED STATES PATENT OFFICE.

WILSON B. CHISHOLM, JOHN WALKER, AND EDWIN H. MARTIN, OF CLEVELAND, OHIO.

FEEDING DEVICE FOR ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 311,229, dated January 27, 1885.

Application filed October 3, 1884. (No model.)

To all whom it may concern:

Be it known that we, WILSON B. CHISHOLM, JOHN WALKER, and EDWIN H. MARTIN, all of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Carrying-Wheels for the Manufacture of Hoop-Iron; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Our invention relates to carrying-tables for the manufacture of hoop-iron, the object being to provide long tables with carrying-rollers located in line with and in close proximity to the finishing-rollers in a rolling-mill plant, so that hoop-iron, as it leaves the finishing-rolls, will be received upon the rollers of the carrying-table, and will automatically be carried forward and delivered from the finishing-rolls in good condition. A further object is to provide bevel friction-gears for driving each carrying-roller. A further object is to provide mechanism for moving each carrying-roller endwise to give the required pressure on the friction-gears. A further object is to arrange double tables in such a manner that they may be furnished at a small initial cost and may be driven with little power.

With these objects in view our invention consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of one form of an improved double carrying-table and the finishing-rolls. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse vertical section of one of the tables and a view in elevation of one of the carrying-rollers. Fig. 4 is a plan view of the finishing-rolls and a modification of a double carrying-table. Fig. 5 is a side elevation of the same. Fig. 6 is a transverse vertical section of one of the tables between the carrying-rollers.

In the manufacture of hoop-iron the common practice has been to employ men or boys to draw the iron forward as it was discharged from the finishing-rolls. The iron, when grasped for this purpose by tongs, was hot and easily bent, twisted, or otherwise injured, and the result was that several feet in length of nearly every piece was injured, so that it was fit only for scrap-iron. To save this heavy loss in iron, and to save the expense of the manual labor thus employed, we have invented a carrying-table that requires little or no attendance, that will carry the iron forward as it is discharged from the finishing-rolls, and preserve the iron in good condition until it is cool enough to be handled without injury.

The billets from which the hoop-iron is made are short, and consequently are quickly passed through the rolls. As the billets become elongated, and especially as they approximate hoop-iron, their length becomes so great that considerable time is required for their passage through the rolls. This necessitated two sets of finishing-rolls to finish the work of one set of rollers at the commencement of the operation, and consequently two carrying-tables or, preferably, a double carrying-table is required.

A represents the tables, which are set in line with and close to the respective finishing-rolls B. The sides of these tables are made of sheets of metal a, set edgewise, and the top is made of sheets of metal a' between the rollers C. Angle-irons a^2 may be used to strengthen the corners, if preferred, and an occasional cross-piece of sheet metal, a^3, may be used to brace the tables. The rollers C are made very light, and consist of a shaft, c, on which are mounted the disks c', around which are secured the sheet-iron cylindrical casings c^2, forming the periphery of the rollers. (See Fig. 4.) The shafts of the rollers are journaled in the edge of the table, and the inner ends are provided with the beveled friction-wheels C, that, as shown in Fig. 1, engage the friction-wheels D, mounted, respectively, on the shafts d, which latter are intergeared with the driving-shaft E, as shown. Sheets of metal F are set edgewise, and are secured to the tables, that form strong ties and braces to hold the tables in place, and also furnish support for the boxes d' of the shafts d. To the outside of the tables are secured the yokes G, each provided with a set-screw, g, and so arranged that the set-screws are in line with the respective

shafts c', and abut against the end thereof, by means of which, as the set-screws are turned in, the shafts c' are crowded endwise to give the required pressure between the respective friction-gearing. It requires but light power to drive the rollers, and the set-screws are not for the purpose of pressing the friction-wheels together with great force, but, on the contrary, to keep them adjusted with just pressure enough to drive the rollers when performing the required functions of carrying off the hoop-iron. The plates a' come as close to the rollers as is practicable, to keep scraps from wedging in between the end of the sheet and the rollers and blocking the latter; but this occasionally occurs, and if toothed gearing were used instead of the friction-gearing serious breakage would occur. With the friction-gears engaging each other lightly no damage is done or hinderance occurs from blocking a roller. The set-screw may be loosened and the roller turned backward to disengage the obstruction, and this may be done without stopping the work. These tables are long, and may have a large number of rollers in each, that revolve with considerable speed; yet with the friction-wheels the operation is noiseless. If toothed gearing were employed, it would greatly increase the din—a result not desirable in a rolling-mill. The rollers C, as shown in Figs. 2 and 5, are set with their tops extending only a short distance above the face of the tables, so that the forward end of the hoop-iron readily mounts and passes over the rollers. The hoop-iron soon after it is extended on the tables becomes cool enough to be moved without twisting, kinking, or otherwise injuring it. When the finishing-rolls B are sufficiently near together, the construction shown in Fig. 4 is preferable, with a single shaft, d, provided with double-faced friction-wheels D′ engaging the friction-wheels C′, as shown. By this construction the rollers C are revolved in the same direction, but are not quite in line with each other on the respective tables, which is a matter of no consequence. This construction is less expensive than that shown in Fig. 1. When but one set of finishing-rollers are used, of course but one carrying-table is required, and in that case one of the apparatus shown in Fig. 1, divided on the line of $x\ x$, will be sufficient. Either half may be used, according as it is most convenient to have the gearing on the one side or the other.

What we claim is—

1. In an apparatus for the manufacture of hoop-iron, the combination, with finishing-rolls, a table located in line with and in close proximity to the finishing-rolls, carrying-rolls mounted on said table, and a friction-wheel secured to each carrying-roll, of a shaft located alongside of and parallel with the table, a series of friction-wheels secured on said shaft, and devices for holding the friction-wheels of the carrying-rolls in contact with the friction-wheels on the shaft, substantially as set forth.

2. The combination, with the rollers C and friction-wheels for revolving the same, of the yokes G and the adjusting-screws g, substantially as set forth.

3. In a double carrying-table for delivering hoop-iron from the finishing-rolls, the combination, with the rollers C, provided with the yokes G, the adjusting-screws g, and the bevel friction-wheels C′, of the double-faced friction-wheels D, substantially as set forth.

In testimony whereof we sign this specification, in the presence of two witnesses, this 30th day of July, 1884.

WILSON B. CHISHOLM.
JOHN WALKER.
EDWIN H. MARTIN.

Witnesses:
CHAS. H. DORER,
ALBERT E. LYNCH.