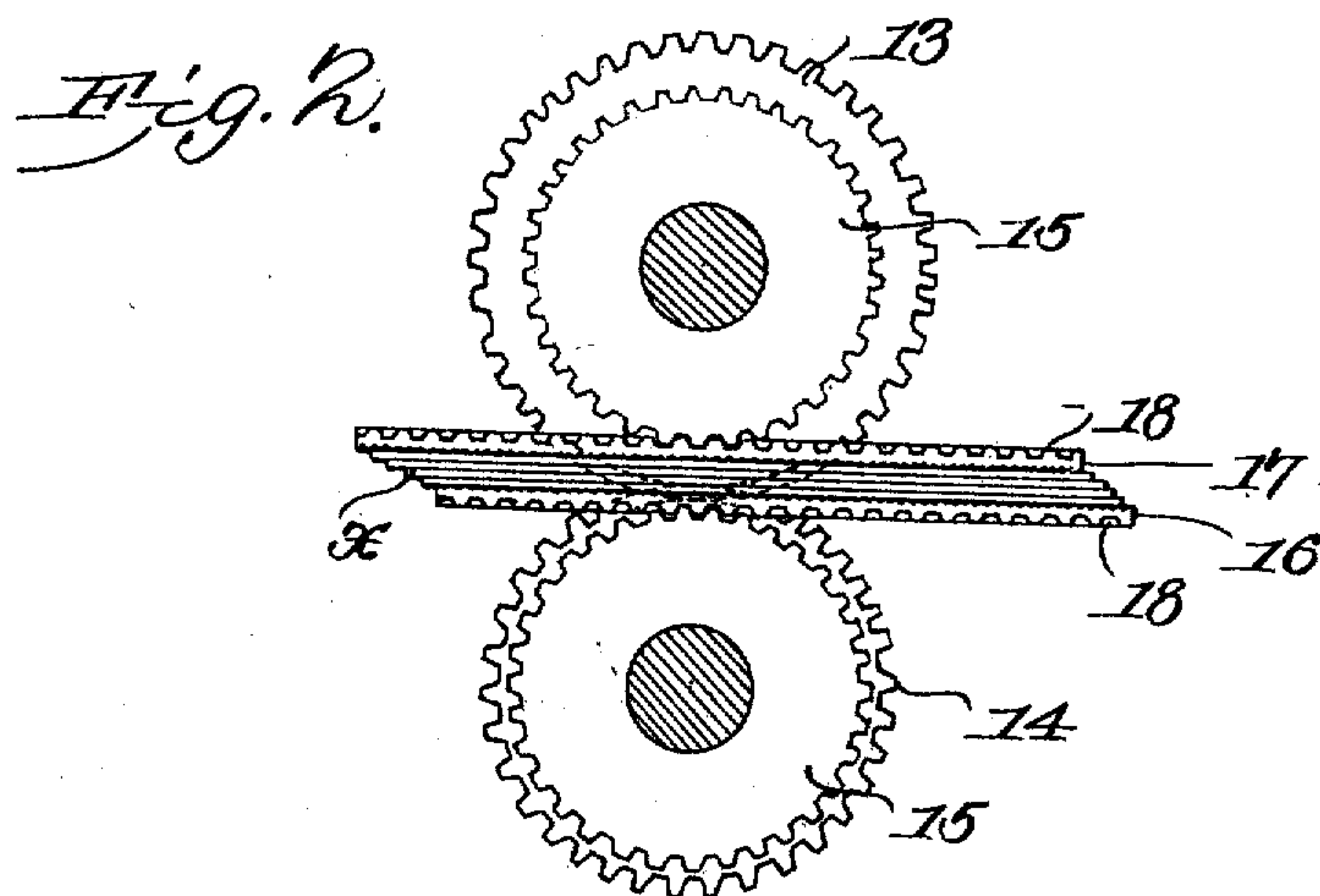
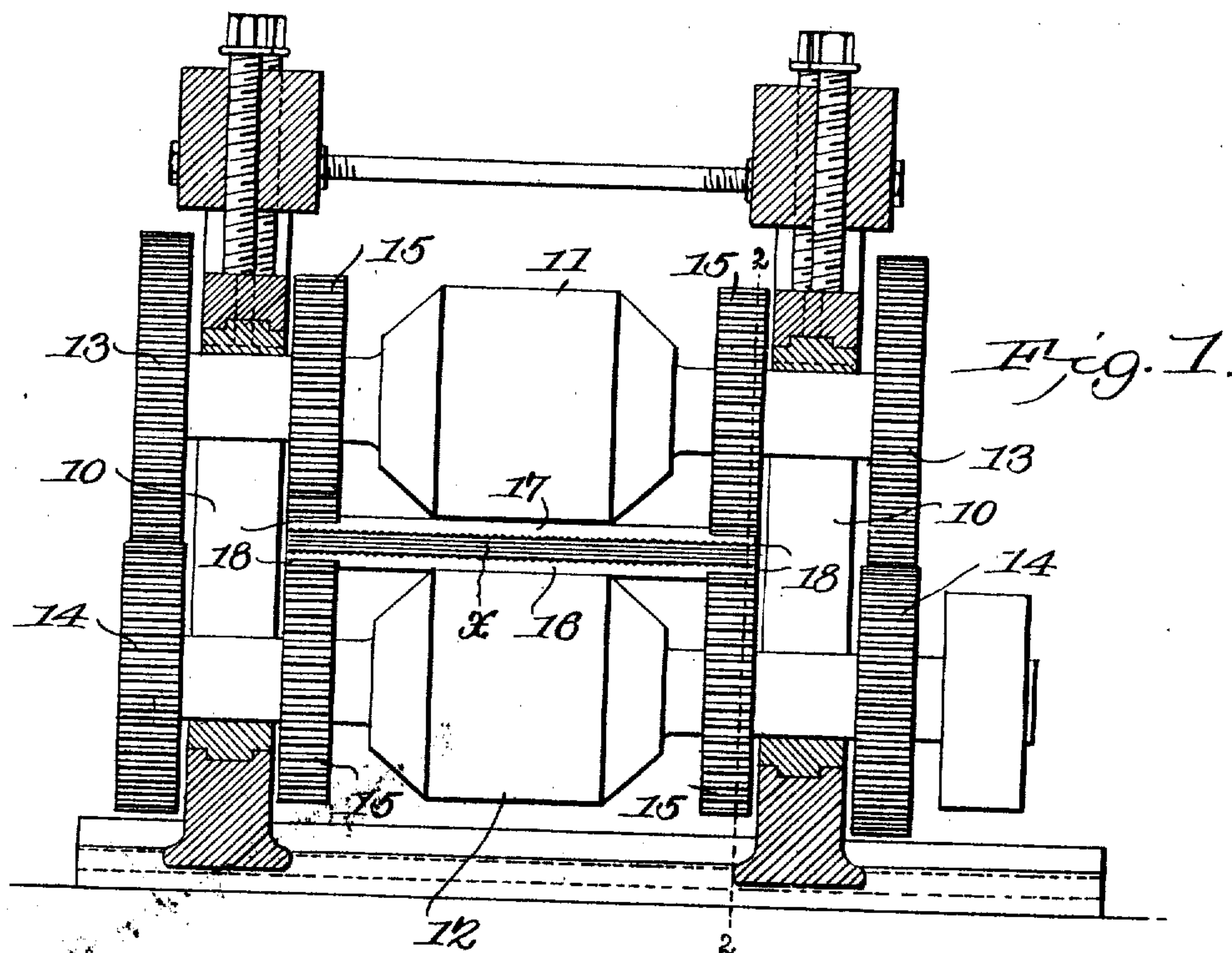


No. 831,683.

PATENTED SEPT. 25, 1906.

A. RIDD,
APPARATUS FOR ROLLING PLATES.
APPLICATION FILED AUG. 1, 1906.



Witnesses

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AMBROSE RIDD, OF NEWPORT, KENTUCKY.

APPARATUS FOR ROLLING PLATES.

No. 831,683.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed August 1, 1905. Serial No. 272,207.

To all whom it may concern:

Be it known that I, AMBROSE RIDD, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented a new and useful Apparatus for Rolling Plates, of which the following is a specification.

This invention relates to apparatus for manufacturing planished metal sheets, and has for its principal object to provide a mechanism for the production of that class of metal known as "Russian sheet-iron."

A further object of the invention is to provide an improved apparatus for finishing or planishing metal sheets having oxid-coated surfaces, the sheets being arranged in packs and forced to slide one on the other while the pack is held under pressure.

A further object of the invention is to provide a rolling-mill in which the sheets to be treated are placed between comparatively heavy plates or platens, which are then passed between the rolls, so that the sheets being treated do not actually come into contact with said rolls.

A still further object of the invention is to provide a rolling-mill in which a sheet or sheets to be treated may be placed between a pair of platens, said platens being provided with racks that are engaged by gears carried by or moving simultaneously with the rolls and preferably at the same speed as said rolls.

A still further object of the invention is to provide an apparatus of this class in which a pair of plate-holding platens are forced together to exercise the pressure on the plate or plates to be treated and then are traveled in the same direction, but at different speeds.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of an apparatus constructed in accordance with the invention. Fig. 2 is a transverse sectional elevation of a portion of the same on the line 2 2 of Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts throughout both figures of the drawings.

In the manufacture of that class of metal known as "Russian" sheet-iron the black plates from tight or loose rolling-mills are subjected to several processes, including one or more passages through the rolls for the purpose of reducing the gage of the sheets and the various processes for producing the smooth finished surface, which is the principal characteristic of this class of metal.

During the course of many experiments I have found that if a number of sheets coated with oxid deposited either naturally or artificially on the surface of the sheets are placed together in a pack and subjected to sliding friction one on the other while the pack is held under pressure the oxid will be condensed and a smooth glazed surface will be produced, the sheets being practically rust-proof. The mechanism forming the subject of the present invention is designed for carrying this process into effect.

In the drawings, 10 indicates the housings of a pair of rolls 11 12, which may be of any suitable dimensions, and the journals of these rolls are connected at both ends by gears 13 14 of unequal diameter, so that the rolls, being of equal diameter, will have unequal surface speeds. Secured to the journal of each roll is a pair of gears 15, said gears being preferably provided with comparatively long teeth in order to permit adjustment of the relative positions of the rolls.

The oxid-coated sheets *x*, previously prepared by rolling and annealing, are placed between two heavy platens 16 and 17, which are of a length equal at least to the length of the sheets and are of a width greater than the width of the active surface of the rolls. Near the outer edge of each of the platens is a rack 18, with which the gears 15 intermesh, and as the rolls are revolved the gears will insure positive movement of the platens, one of said platens traveling at greater speed than the other, but both moving in the same direction, and this movement is imparted to the sheets between the platens, so that said sheets will be forced to slide one on the other in frictional contact while held together under any desired pressure. The inner faces of the platens are preferably slightly roughened in order that they may tightly grip the outermost sheets of the pack, the uppermost sheets forming smooth linings for the platens, this

being principally for the purpose of economizing in the production of the platens and in order to save the expense of producing the highly-finished surface of the platens which
5 would otherwise be necessary.

In carrying out the invention the platens are heated to any desired temperature, and while this temperature may vary for different classes of metal it is preferred to maintain the
10 platens at about a dark cherry red. The oxid-coated sheets are then placed between these platens, and, as before noted, the oxid may be formed naturally during the several heating processes through which the sheets
15 go and by exposing the same to the air, or the production of the oxid may be promoted by artificial means, or a previously-prepared ferric oxid in powdered form may be mechanically applied to said sheets. These oxid-
20 coated sheets are placed between the platens, and the latter are then run through the rolls, and as one roll has a greater surface speed than the other one of the platens will be moved faster than the other, and this move-
25 ment will be imparted successively to the sheets which form the pack, so that said sheets will be forced to slide frictionally one on the other, and the smooth highly-finished surface found in Russian sheet-iron will be
30 produced.

Having thus described the invention, what is claimed is—

1. In apparatus of the class described, a pair of platens between which the sheets to
35 be treated are placed, and means for holding

said platens under pressure and for moving the same in the same direction and at different speeds, respectively.

2. In apparatus of the class described, a pair of rolls, means for revolving said rolls in opposite directions and at different surface speeds, respectively, and a pair of sheet-confining platens with which the rolls engage, and means for positively feeding the platens between said rolls at a speed determined by
4 the speed of the rolls.

3. In apparatus of the class described, the combination with a pair of rolls revolving in opposite directions and at different surface speeds, respectively, a pair of sheet-confining
5 platens movable between the rollers and having racks, and gears rotating with the rolls and intermeshing with the racks.

4. In apparatus of the class described, a pair of rolls, means for revolving the rolls in
5 opposite directions and at different surface speeds, respectively, a pair of platens movable between the rolls, said platens having roughened surfaces for engagement with the outermost sheets of the pack, and means for
60 positively feeding said platens between the rolls at the speeds, respectively, of the said roll-surfaces.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
65 the presence of two witnesses.

AMBROSE RIDD.

Witnesses:

J. H. JOCHUM, Jr.,
J. M. WALKER.