

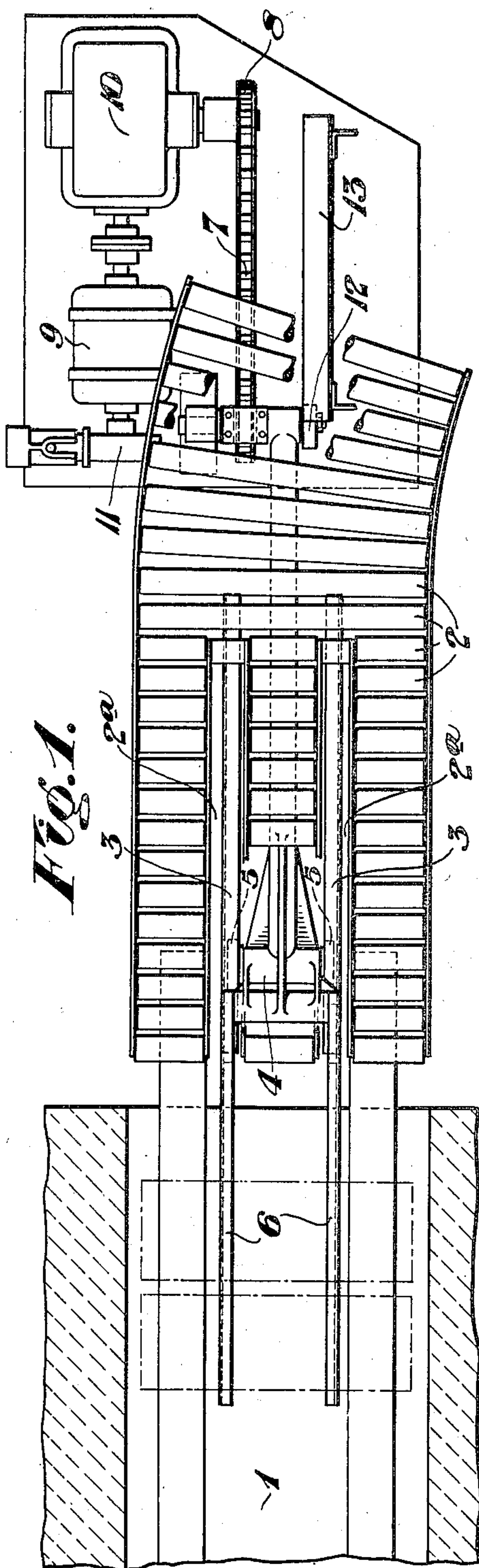
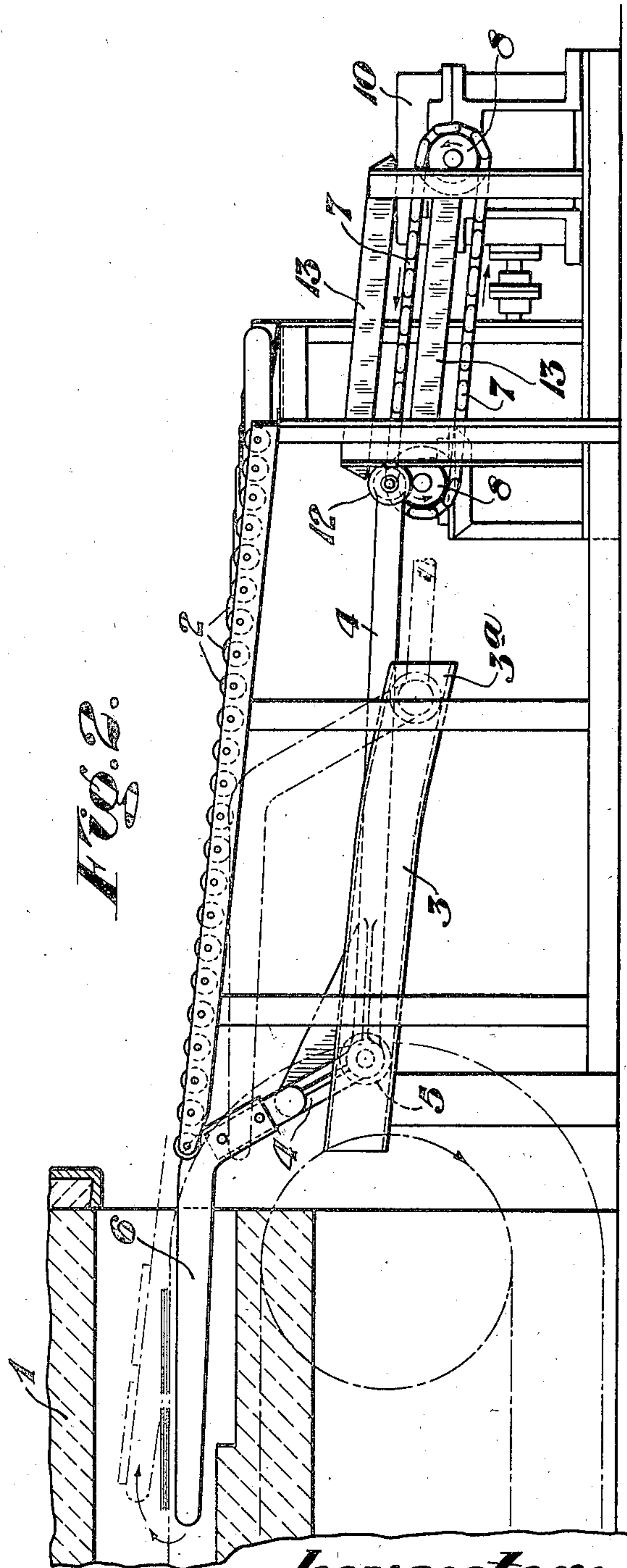
Dec. 17, 1935.

F. K. SCHEFE

2,024,949

AUTOMATIC DISCHARGING MECHANISM

Filed Feb. 13, 1933



Inventor:
FREDERICK K. SCHEFE,
by: *Meina & Rauber*
his Attorneys.

UNITED STATES PATENT OFFICE

2,024,949

AUTOMATIC DISCHARGING MECHANISM

Frederick K. Scheffe, Gary, Ind., assignor to American Sheet and Tin Plate Company, a corporation of New Jersey

Application February 13, 1933, Serial No. 656,644

7 Claims. (Cl. 214—18)

This invention relates to furnace discharging machines, one of the objects being to provide a sturdy mechanical device for removing work from a furnace and depositing it on a conveyer. Preferably, this device deposits the work on the conveyer with a slight forward urging motion to start it along. Other objects may be inferred from the following disclosure.

Referring to the accompanying drawing:

Figure 1 is a top plan.

Figure 2 is a side elevation.

The drawing shows the invention removing work from a continuous sheet pack furnace 1 and depositing it on a gravity roller-conveyer 2 which, it is assumed, feeds a breakdown mill.

In the present instance the machine includes spaced guiding channels 3 arranged substantially parallel to and below the end of the conveyer 2 adjacent the furnace 1. These guides have dropping end portions 3^a. A rocking substantially bell-crank mounting member 4 rides in these guiding channels on rollers 5 which form a rocking axis.

This mounting member is constructed with short and long arms, the short arms being spaced and extending angularly upward towards the furnace 1 and the long arm extending away therefrom. These short arms mount carrier blades 6 and the long arm is preferably fixed to an endless chain 7 carried by sprockets 8 so as to be substantially aligned with the channels 3.

One of these sprockets is driven by a motor 9 through a suitable gear reduction unit 10 and is braked for quick stopping by an electromagnetic brake 11. These arms are, in effect, a carrier for the work.

In operation, the chain 7 is rotated by the motor 9 so that the carrier blades 6 are reciprocated between points in the furnace 1 and below the conveyer 2. In the forward motion the long arm of the mounting member is raised, because it will then be carried by the upper section of the chain 7. Thus, the carrier blade 6 will be moved forwardly in a downward position and may engage beneath the sheet packs moved through the furnace 1.

The long lever of the mounting member then rides around the forward sprocket 8, so that it is moved downwardly and rocks the member. This moves the blades upwardly so that they lift the sheet packs and remove them from the furnace. When the pivotal point of the chain rounds the other sprocket it rocks the long arm of the mounting member upwardly so that the carrier blades drop and deposit the sheet packs on the conveyer.

As the long arm of the mounting member describes an arc around the sprockets it imparts a circular or curvilinear motion to the carrier blades so that when in the furnace they lift the work with an outward drawing motion and when dropping below the conveyer 2 with a forward dropping and urging motion, this last giving the packs a slight push or urge along the conveyer.

Preferably, the long arm of the mounting member 4 is provided with a roller 12 at its pivotal point with the chain 7. This roller runs beneath guides 13 arranged over both straight portions of the chain 7, and is thereby held downwardly so that the chain need not withstand the weight of the sheet packs on the carrier blades.

In the present instance the conveyer 2 is a rather wide one, to accommodate large sheet packs, and is constructed with slots 2^a through which the carrier blades pass in their discharging motion. Obviously, this conveyer may be constructed in various other ways to permit passage of the carrier blades. In addition, limit switches may be used to effect automatic control of the motor 9. If this is done it will probably prove preferable to so arrange them that the guide blades 6 are always out of the furnace and in a position below the conveyer 2. This will mean that the end of the long arm of the rocking mounting member will be just above the axis of the sprocket 8 most remote from the furnace. Then, in discharging operation, it will make a complete circuit around the other sprocket and back to this point.

The conveyer system which moves the sheet packs through the continuous furnace 1 has not been shown and described because it forms no part of the invention and is well known to those familiar with continuous furnaces. The position of the breakdown mill has not been indicated for the same reason.

Although a specific form of this new furnace discharging machine has been shown and described in accordance with the patent statutes, it is not intended to limit the inventive scope exactly thereto, except as defined by the following claims.

I claim:

1. The combination with a heating furnace having means for conveying the bars through a furnace and a conveyer adjacent the discharge end of said furnace for conveying the heated work away from the furnace, of a carriage movable toward and away from said furnace in substantially straight directions and having a pair of arms which enter said furnace on a plane

below the heated work when said carriage moves toward said furnace and means for reciprocating said carriage, said means rocking said carriage adjacent the extremes of its movement to raise
5 said arms above said furnace conveying means and to lower said arms, and means other than said reciprocating means for permitting said carriage to move downwardly below said second named conveyer.

10 2. The combination with a heating furnace having means for conveying the bars through the furnace and a conveyer adjacent the discharge end of said furnace for conveying the heated work away from the furnace, of a carriage movable
15 toward and away from said furnace and having a pair of arms which enter said furnace on a plane below the heated work when said carriage moves toward said furnace, means for supporting and guiding said carriage, an elongated crank and
20 connecting-rod for reciprocating said carriage, said means rocking said carriage adjacent the extremes of its movement to raise said arms above said furnace conveying means and to lower said arms below said second named conveyer, and
25 said supporting and guiding means for said carriage being adapted to permit said carriage to move downwardly to position said arms below the top plane of said second named conveyor prior to the rocking of said carriage by said elongated
30 crank and said connecting-rod.

3. In combination with a conveyer, guiding means including a substantially straight portion arranged parallel with and below said conveyer, a rocking mounting member reciprocatively carried by said guiding means, said member mounting
35 a carrier extending angularly upwardly towards the receiving end of said conveyer and an oppositely extending arm, an endless chain arranged substantially parallel with said guiding means and connecting with the end of said arm,
40 and means for driving said chain.

4. In combination with a conveyer, guiding means including a substantially straight portion arranged parallel with and below said conveyer,
45 a rocking mounting member reciprocatively carried by said guiding means, said member mount-

ing a carrier extending angularly upwardly towards the receiving end of said conveyer and an oppositely extending arm, an endless chain arranged substantially parallel with said straight
5 portion of said guiding means and connecting with the end of said arm, and means for driving said chain, said guiding means having a dropping end portion towards said chain.

5. In combination with a conveyer, guiding means including a substantially straight portion
10 arranged parallel with and below said conveyer, a rocking mounting member reciprocatively carried by said guiding means, said member mounting a carrier extending angularly upwardly towards the receiving end of said conveyer and an
15 oppositely extending arm, an endless chain arranged substantially parallel with said straight portion of said guiding means and connecting with the end of said arm, and means for driving said chain, said guiding means having a dropping
20 end portion towards said chain, and said chain being provided with straight guides arranged parallel therewith for cooperation with the connecting end of said lever.

6. The combination of a carrier, a reciprocative
25 rocking mount for said carrier, means for guiding said mount through a reciprocative path which includes a substantially straight portion, a lever in rocking connection with said mount, an endless chain substantially aligned with said straight
30 portion of said reciprocative path and arranged in connection with said lever, and means for driving said chain.

7. The combination of a carrier, a reciprocative
35 rocking mount for said carrier, means for guiding said mount through a reciprocative path which includes a substantially straight portion, a lever having one end arranged in rocking connection with said mount, an endless chain substantially
40 aligned with said straight portion of said reciprocative path and arranged in connection with the other end of said lever, means for guiding or holding said other end of said lever against movement at an angle to said chain and means for
45 driving said chain.

FREDERICK K. SCHEFE.