No. 685,127. Patented Oct. 22, 1901.

H. R. GEER.

COOLING BED FOR PLATES OR BARS.

(Application filed July 3, 1901.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.

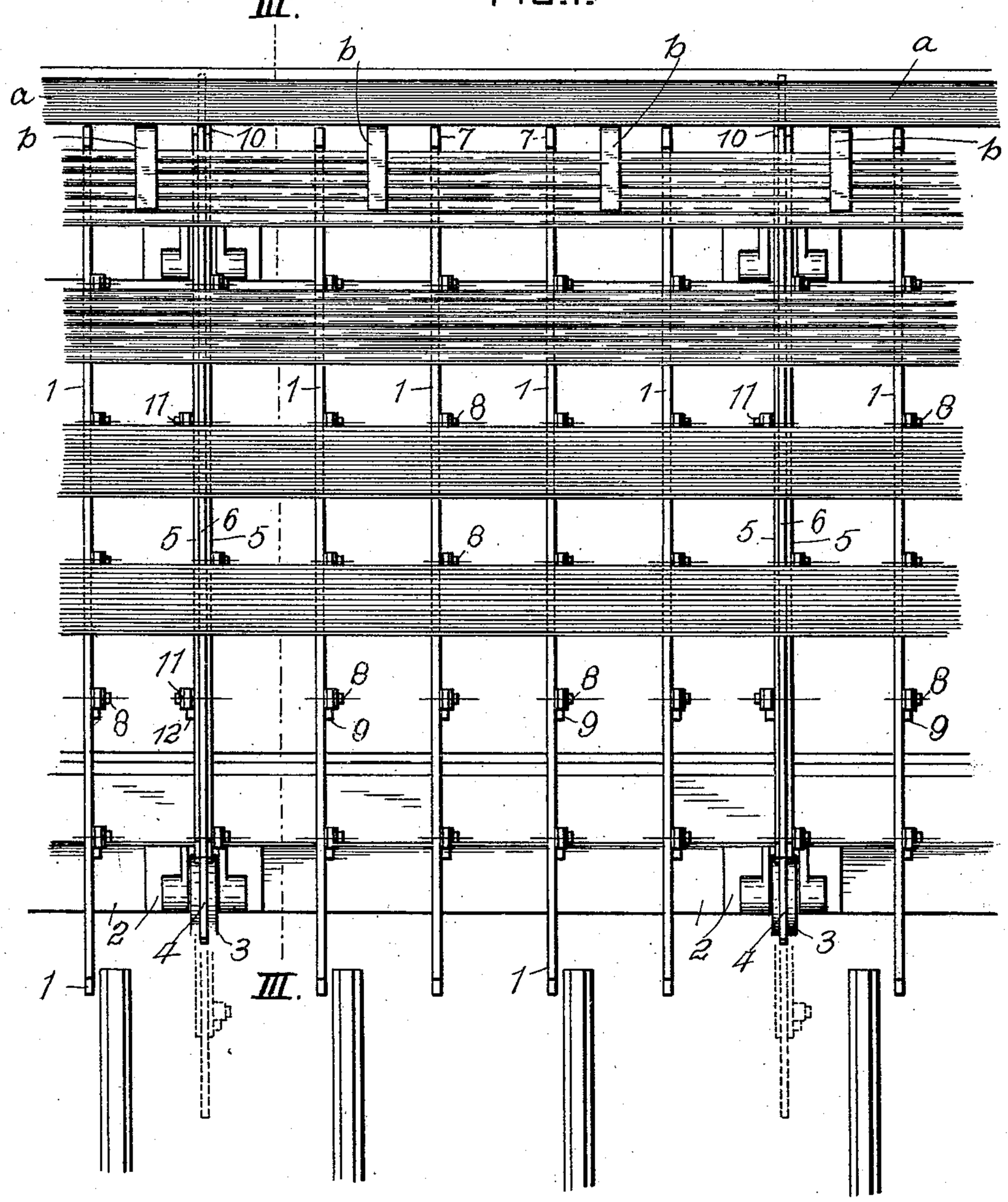

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FIG. 2.

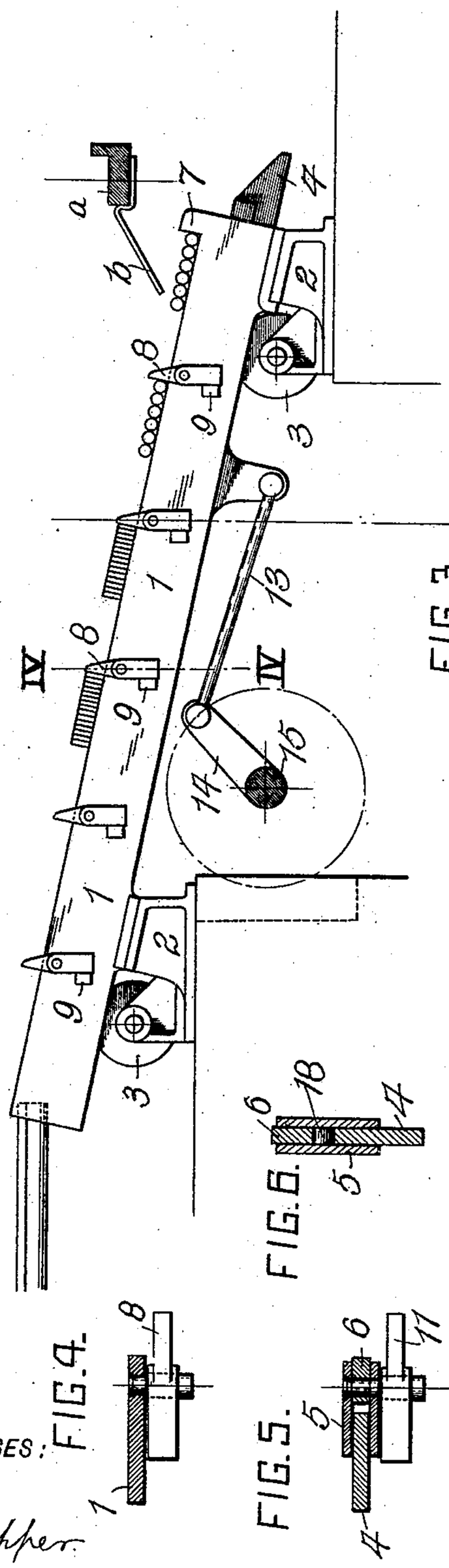

FIG. 3.

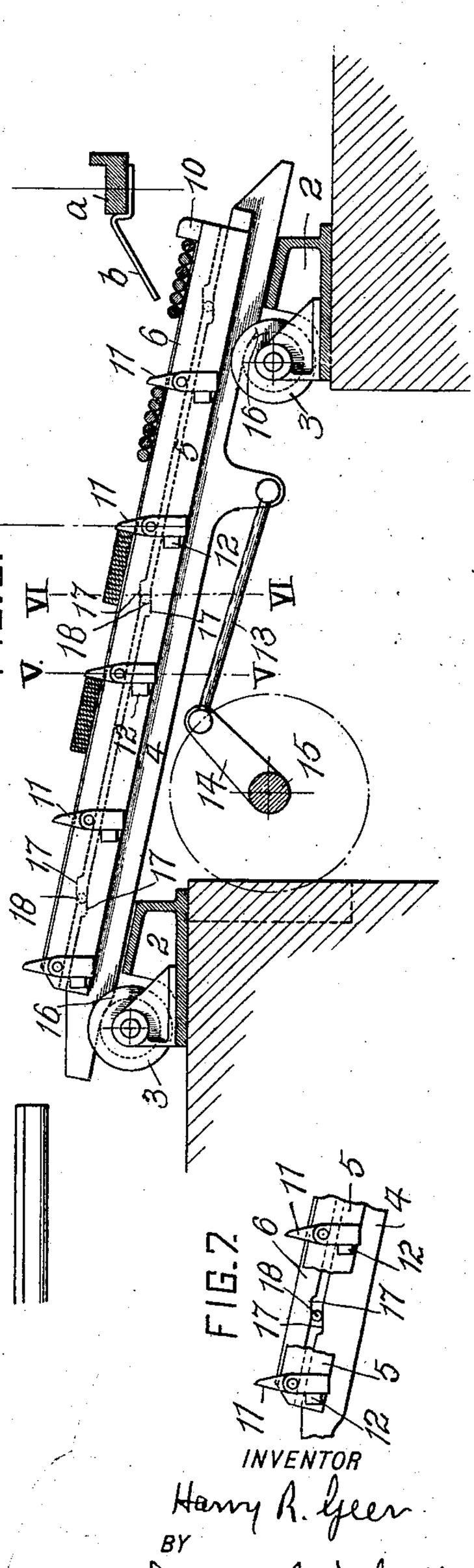

FIG. 6.

FIG. 4.

FIG. 5.

FIG. 7.

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UNITED STATES PATENT OFFICE.

HARRY R. GEER, OF ELYRIA, OHIO.

COOLING-BED FOR PLATES OR BARS.

SPECIFICATION forming part of Letters Patent No. 685,127, dated October 22, 1901.

Application filed July 3, 1901. Serial No. 66,992. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. GEER, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented or discovered certain new and useful Improvements in Cooling-Beds for Plates or Bars, of which improvements the following is a specification.

The invention described herein relates to certain improvements in cooling-beds and mechanism for transferring metal bars step by step along such bed.

It is an object of the invention to provide for the step-by-step shifting of one or more of the bars along the bed without effecting any change in the position of the bar thereon—*i. e.*, without causing the bar to fall over or to roll during the shifting operation.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of my improved cooling-bed. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional elevation on a plane indicated by the line III III, Fig. 1. Figs. 4, 5, and 6 are transverse sections on planes indicated, respectively, by the line IV IV, Fig. 2, and lines V V and VI VI, Fig. 3. Fig. 7 is a detail view, on an enlarged scale, of a portion of one of the moving skids.

In the practice of my invention the bed consists of a series of stationary plates or skids 1, which for some purposes may be inclined, as shown, and are supported on suitable foundation plates or beds 2 and a series of compound movable skids arranged parallel and intermediate of the stationary skids or plates. These compound skids consist of a plate or bar 4, movably supported upon rollers 3, two or more in number, side plates 5, and a supporting-plate 6, secured between the side plates, which extend on both sides of the main plate 4. The stationary skids or plates 1 are provided at the ends adjacent to the feed-table of the rolling-mill, such table being indicated at *a* and having an incline *b*, down which the plates or bars to be cooled are fed to the cooling-table, with a fixed stop-shoulder 7. A series of two or more dogs 8 are pivotally mounted at intervals along the stationary skids or plates and have their lower ends weighted, so as to normally hang in a vertical position, with their upper ends above the upper edges of the skids or plates. These dogs are held as against movement in one direction by means of stops 9, against which the lower ends of the dogs will bear, while their upper ends are pressed downwardly or to the right by the weight of the plates or bars resting on the skids. The movable skids or plates are provided with stationary fingers or projections 10 at their lower ends and with a series of pivotally-mounted dogs 11 arranged along their length a distance apart approximately equal to the spacing of the dogs 8. These dogs 11 have their lower ends weighted, so that they will automatically return to normal position when shifted therefrom, as hereinafter described, and are held as against rotation in one direction by means of stops 12. The carrying members 4 of the movable skids are connected by rods 13 to crank-arms 14 on the power-shaft 15, whereby the movable skids are reciprocated.

In normal position the movable skids are supported so that the fixed projections 10 and the dogs 11 are in line or a little below the corresponding parts of the stationary skids, so that as the plates or bars are fed down the apron *b* they will drop onto the skids and slide down against the fixed stops 10 and 7. As soon as a sufficient number of plates or bars have accumulated above the fixed stops the shaft 15 is rotated, thereby causing the movable skids to move upwardly. At the time or a little previous to the contact of the fixed fingers 10 with the plates or bars the movable skids are raised by the riding up on the rollers 3 of shoulders or lateral enlargements 16 of the members 4 of the movable skids, so that the upper edges of the bearing members 6 of the movable skid will rise above the edge of the stationary skids, carrying the plates or bars out of contact with the latter. By the continued upper movement of the movable skids the plates or bars are carried beyond the dogs 8, which will turn down to permit the passage of the plates or bars until the fixed step 7 is passed a little beyond the lower dog 8, carrying with it the plates or bars, so as to permit the pivoted dogs 8 resuming their normal positions. The movable skids then begin their return movement in the same plane,

carrying with them the plates or bars until they rest against the dogs 8. At this time the bearing-pieces 6 of the movable skids are dropped down, so that the plates or bars will rest upon the stationary skids, and the movable skid will continue its downward movement without contact of any part thereof with the plates or bars. This dropping movement of the bearing-pieces of the movable skids can be effected in any suitable manner—such, for example, as that shown in Figs. 3, 5, 6, and 7. As therein shown, the upper surfaces of the carrying portions 4 of the movable skid and the lower edges of the bearing-pieces 6 have inclined recessed portions 17, between which are interposed rollers 18. These parts are so proportioned and constructed that when the plates or bars strike against the dogs 8, thereby checking the movement of the portions 6 of the movable skids, the main portion 4 thereof may continue on, so that the roller 18 will enter the deepest portions of the inclines or recesses of the portions 4 and 6 of the skid, and thereby permit the bearing portion 6 to drop down below the level of the upper edges of the skid 1. As soon as the main portion of the movable skids reaches the lower limit of its movement and the shoulders or enlargements 16 pass off of the rollers 3 the portions 6 will slide down automatically and resume normal position, being slightly raised by this downward movement until their upper edges come into alinement or approximately into alinement with the upper edges of the stationary skids.

I claim herein as my invention—

1. A cooling-bed for plates or bars, having in combination a series of stationary skids, one or more dogs pivotally mounted on said skids, a series of two or more movable skids, means for raising the movable skids at or near the beginning of their movement in one direction and means for lowering the movable skids at or near the beginning of the return movement of the skids, substantially as set forth.

2. A cooling-bed for plates or bars, having in combination, a series of stationary skids, one or more holding-dogs pivotally mounted on the skids, a series of carrying-plates movably mounted intermediate of the stationary skids, a series of bearing-plates movably mounted on the carrying-plates, means for reciprocating the said plates, pivotally-mounted dogs carried by said plates, means for raising and lowering said plates at or near the beginning of the shifting movement, and means for lowering and raising the bearing-plates at the beginning and end of the return movement of said plates, substantially as set forth.

3. A cooling-bed for plates or bars, having in combination, a series of stationary skids, one or more dogs pivotally mounted on said skids, a series of carrying-plates movably mounted intermediate of the stationary skids, a series of bearing-plates movably mounted on the carrying-plates, the adjacent edges of said carrying and bearing plates being provided with inclines or recesses, rollers interposed between said inclined or recessed portions, pivotally-mounted dogs carried by the bearing-plates, means for reciprocating the carrying-plates, and means for raising and lowering said plates at the beginning and end of their movements, substantially as set forth.

In testimony whereof I have hereunto set my hand.

HARRY R. GEER.

Witnesses:

C. W. QUARRIES,

GEO. E. DONALD.