No. 618,717. Patented Jan. 31, 1899.

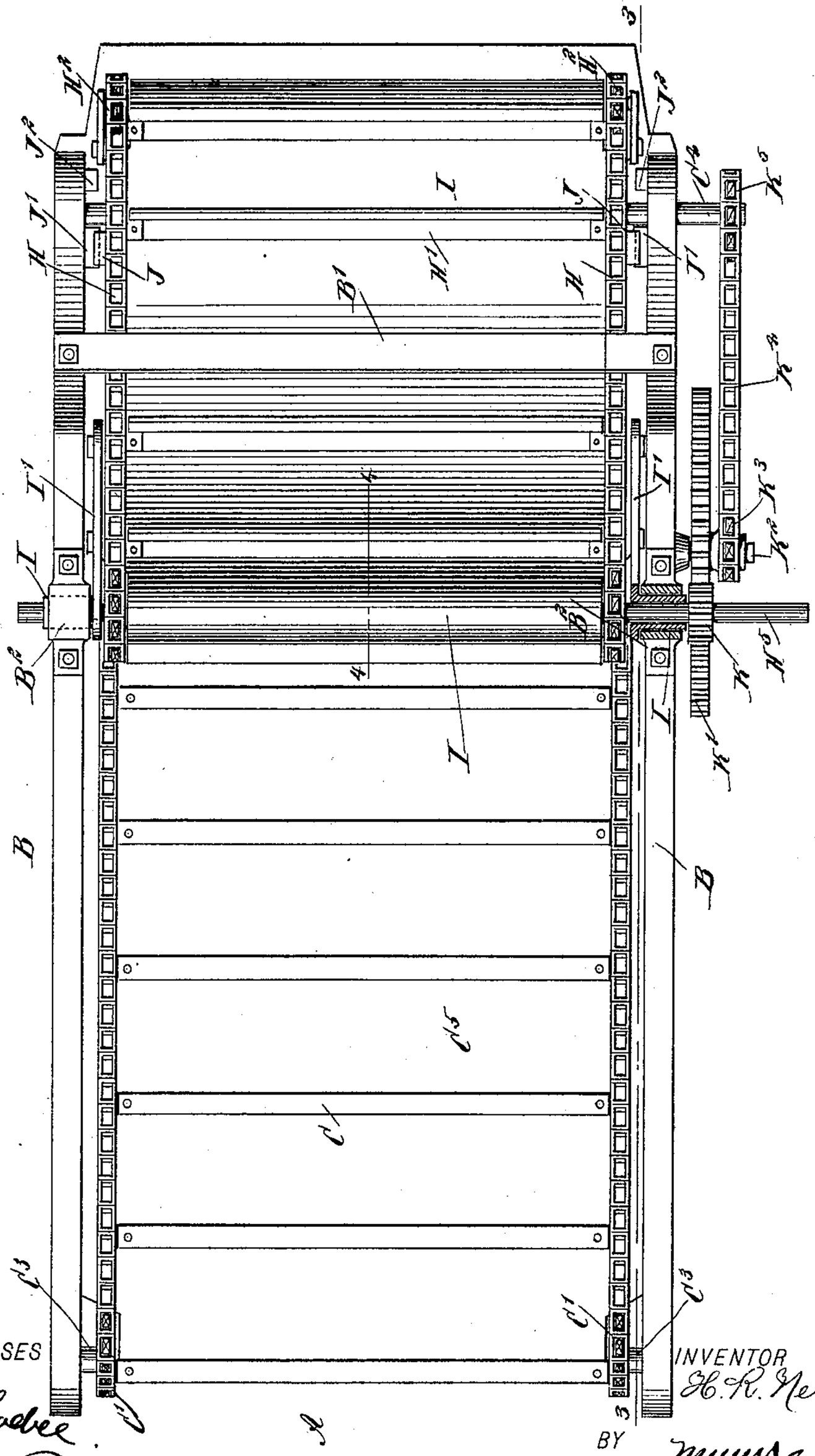
H. R. NELSON.

STOKER FOR STRAW BURNING FURNACES.

(Application filed June 14, 1898.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1.



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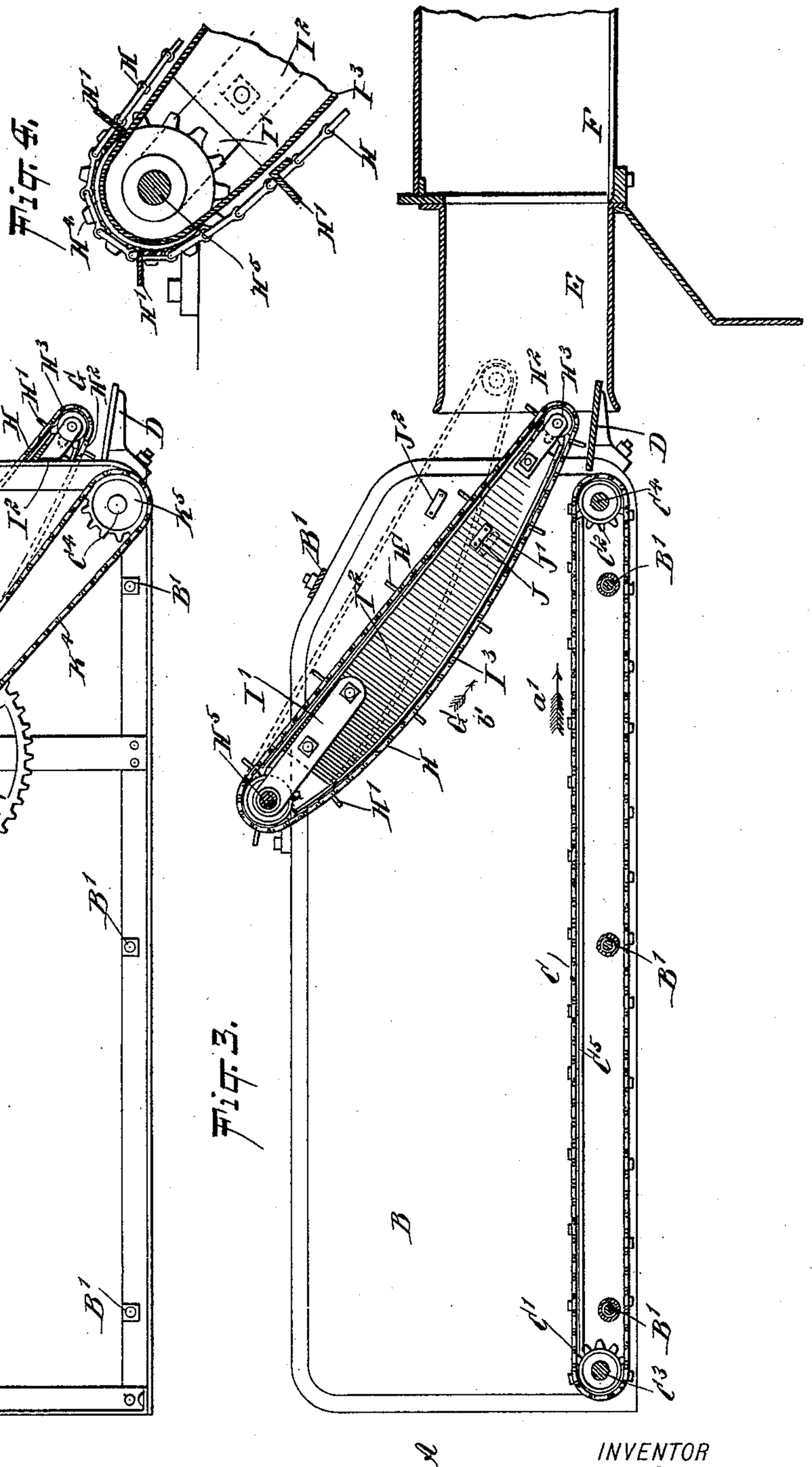

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HENRY ROBERT NELSON, OF GALES, MINNESOTA.

STOKER FOR STRAW-BURNING FURNACES.

SPECIFICATION forming part of Letters Patent No. 618,717, dated January 31, 1899.

Application filed June 14, 1898. Serial No. 683,415. (No model.)

To all whom it may concern:

Be it known that I, HENRY ROBERT NELSON, of Gales, in the county of Redwood and State of Minnesota, have invented a new and Improved Stoker for Straw-Burning Furnaces, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved stoker more especially designed for use on threshing-engines, the stoker being arranged to automatically and continuously feed the straw to the fire-box for immediate and rapid consumption.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a reduced side elevation of the same. Fig. 3 is a reduced sectional side elevation of the same on the line 3 3 of Fig. 1; and Fig. 4 is an enlarged sectional side elevation of the upper part of the feeder, the section being on the line 4 4 of Fig. 1.

The improved stoker is provided with a straw-receiving casing A, formed with two solid sides B, rigidly connected with each other at the top and bottom by suitable stays B′, as is plainly indicated in the drawings. The bottom of the receiving-casing A is formed by an endless conveyer slat-belt C, having side chains passing over sprocket-wheels C′ C^2, secured to transverse shafts C^3 and C^4, respectively, journaled in suitable bearings in the sides B of the casing. A table C^5, secured to the sides B, extends directly under the upper run of the slat-belt C, so that the material is readily moved forward by the belt in the direction of the arrow *a′* to finally distribute the straw over the feed-plate D, secured to the forward ends of the sides B and extending into the mouth E, leading to the fire-box F of the straw-burning furnace of any approved construction.

In the front end of the casing A is arranged a floating feeder G, provided with endless chains H, connected by angle-iron feed-plates H′, adapted to push with their vertically or outwardly extending members the material over the feed-plate D into the mouth E to insure a proper delivery of the straw to the fire-box. The lower ends of the chains H pass over sprocket-wheels H^2, secured to a transverse shaft H^3, arranged over the feed-plate D, and the upper ends of the said chains H pass over sprocket-wheels H^4, secured on a driving-shaft H^5, mounted to turn in sleeves I, held to turn in bearings B^2, secured to the top of the sides B. The sleeves I are provided at their inner ends with rigid arms I′, secured to the sides I^2 of a casing I^3, preferably made of sheet metal and having their ends passing around the shafts H^3 and H^5 close to the angle-iron feed-plates, the bottom portion conforming approximately to the natural sag of the lower run of the chains H, as is plainly indicated in Fig. 3. The sides I^2 of said casing I^3 also support bearings for the lower shaft H^3.

Now it is evident that by the construction described the floating feeder G is free to swing from the driving-shaft H^5 as the fulcrum, so that the free lower end of said feeder moves toward or from the feed-plate D, according to the amount of material moved forward on the conveyer-belt C and according to the amount of straw consumed in the fire-box F. The swinging motion of the floating feeder G is limited by a lug J, secured to the sides I^2 of the casing and adapted to engage corresponding lugs J′ J^2, secured to the inner faces of the sides B, as will be readily understood by reference to Fig. 3. The conveyer-belt C is driven from the driving-shaft H^5, and for this purpose the said shaft H^5 is provided with a pinion K in mesh with a spur-wheel K′, mounted to turn on a stud K^2, carried by one of the sides B.

On the gear-wheel K′ is carried a sprocket-wheel K^3, over which passes a sprocket-chain K^4, also passing over a sprocket-wheel K^5, secured to the shaft C^4, so that a rotary motion is given to the conveyer-belt C when the shaft H^5 is rotated. The latter is provided for this purpose with a suitable pulley (not shown) connected by a belt with other machinery for imparting a rotary motion to the driving-shaft H^5.

By the gearing mentioned a very slow traveling motion is given to the conveyer-belt C,

while the chains of the floating feeder receive a considerably faster traveling motion, so as to insure a proper feed of the straw to the mouth E of the fire-box.

The angle-iron slats H′ extend with their horizontal members forward in the direction of the travel of the chain, as indicated by the arrow b' in Fig. 3, and the said horizontal members extend close to the outer face of the casing I^3, so as to prevent the straw from clogging on the slats of the casing.

Now it is evident that the straw delivered into the rear end of the casing A is readily carried forward by the slat-belt C and is pushed by the feed-plate H′ of the floating feeder G over the feed-plate D into the mouth E of the fire-box. The said floating feeder G is free to swing upward or downward, according to the amount and size of the material carried on the slat-belt C, so that all danger of clogging is completely avoided, as the floating feeder can readily swing upward in case it encounters large bundles or lumps of straw.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A mechanical stoker, having a casing formed of two perpendicular sides rigidly joined to each other, a table located in the bottom of the casing and running horizontally therein, a shaft mounted at each end of the table, wheels carried on the shaft, an endless conveyer run over the wheels, the upper run of the conveyer passing above the table and the lower run beneath the same, a shaft mounted at the top of the casing, gearing connecting the said shaft to turn in unison with the two first-named shafts, a sleeve mounted to turn loosely at each end of the third shaft, bearings attached to the casing, in which bearings the sleeves are mounted, arms attached to the sleeves, a floating feeder-frame attached to the arms, the feeder-frame projecting beyond the delivery end of the casing, an endless carrier running over the feeder-frame and driven from the third-named shaft, and a feed-plate mounted at the discharge end of the first-named carrier and beneath the free end of the floating feeder-frame.

2. A mechanical stoker, having a casing, an endless feed-carrier mounted in the bottom of the casing and discharging at one end thereof, two sleeves mounted loosely in bearings at the top of the casing, a shaft fitted to turn in the sleeves, gearing for turning the shaft in unison with the feeding-carrier, arms attached respectively to the sleeves, a floating feeder-frame attached to and swinging with the arms, and a second feeding-carrier mounted on the floating feeder-frame and driven by the shaft thereof.

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