

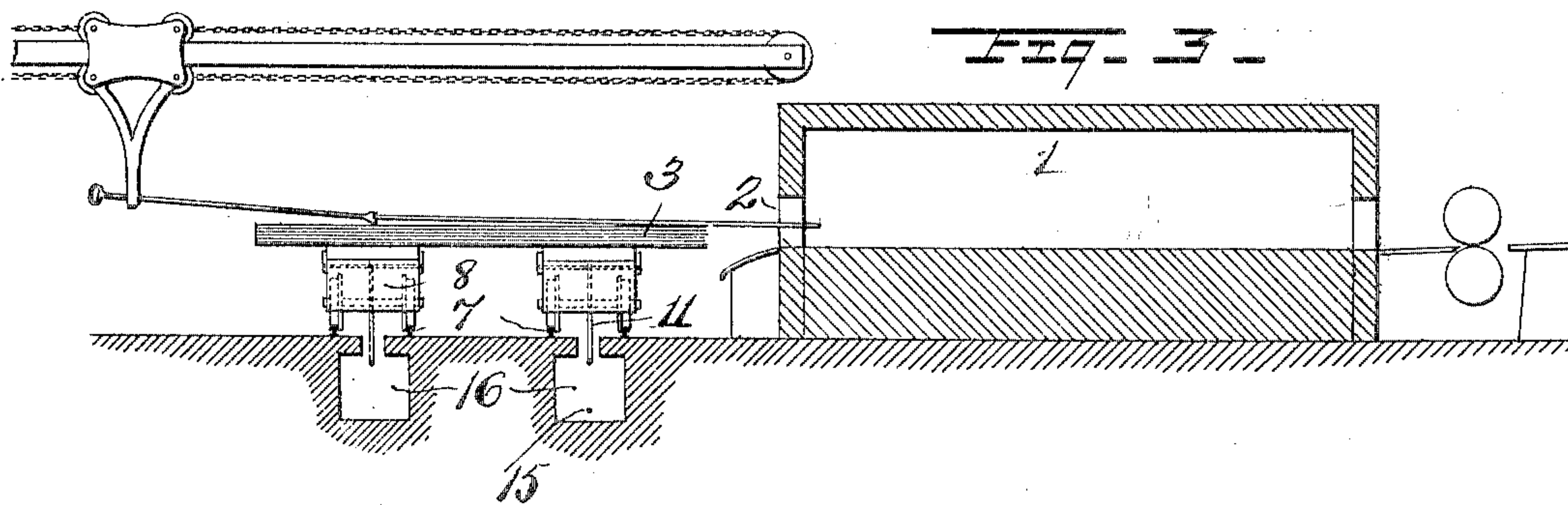
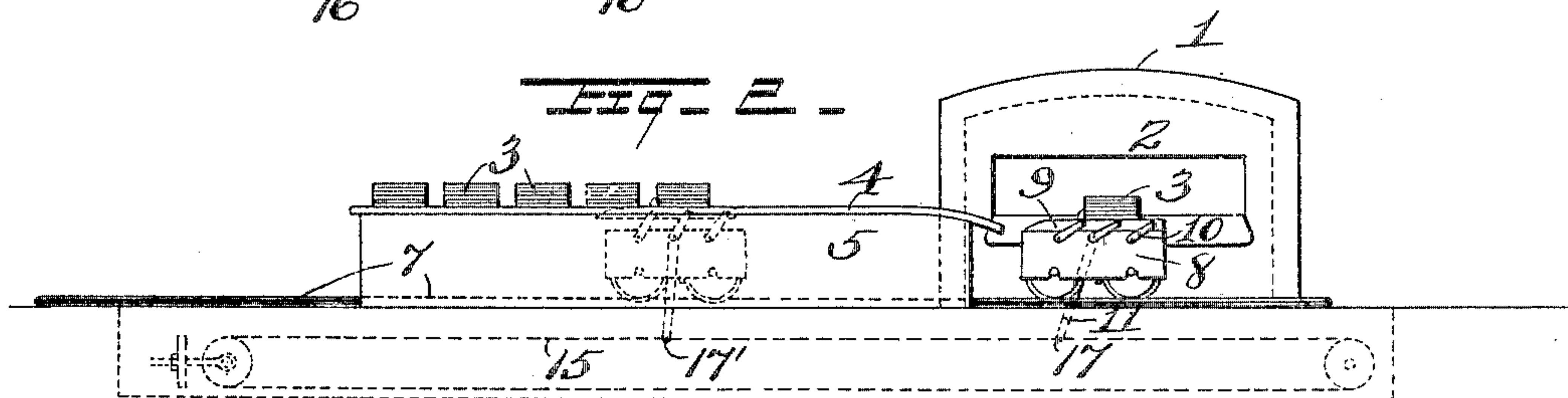
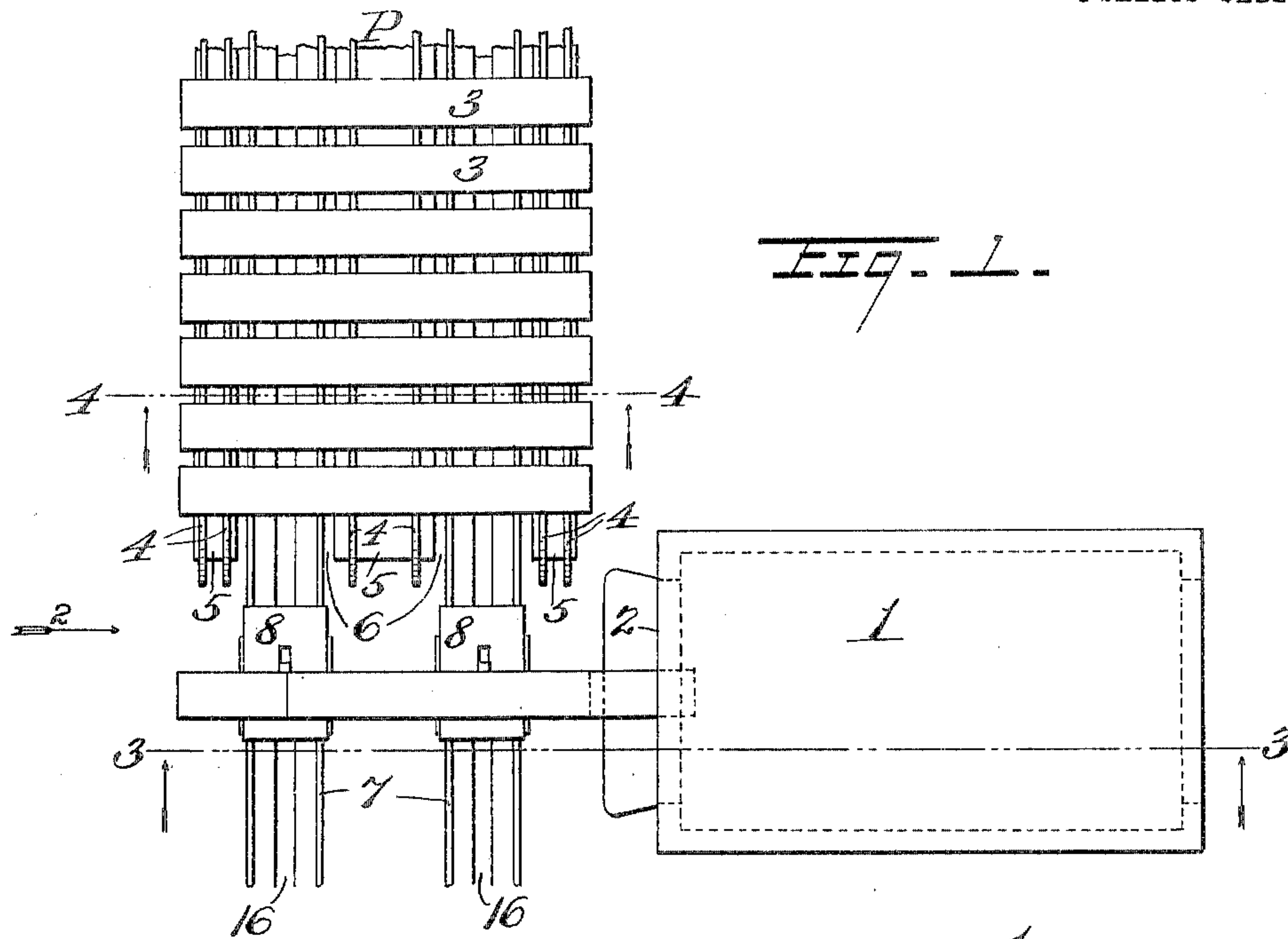
No. 793,806.

PATENTED JULY 4, 1905.

G. SCHUHMAN.  
FURNACE CHARGING APPARATUS.

APPLICATION FILED JAN. 20, 1905.

2 SHEETS—SHEET 1.



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Fig. 4.

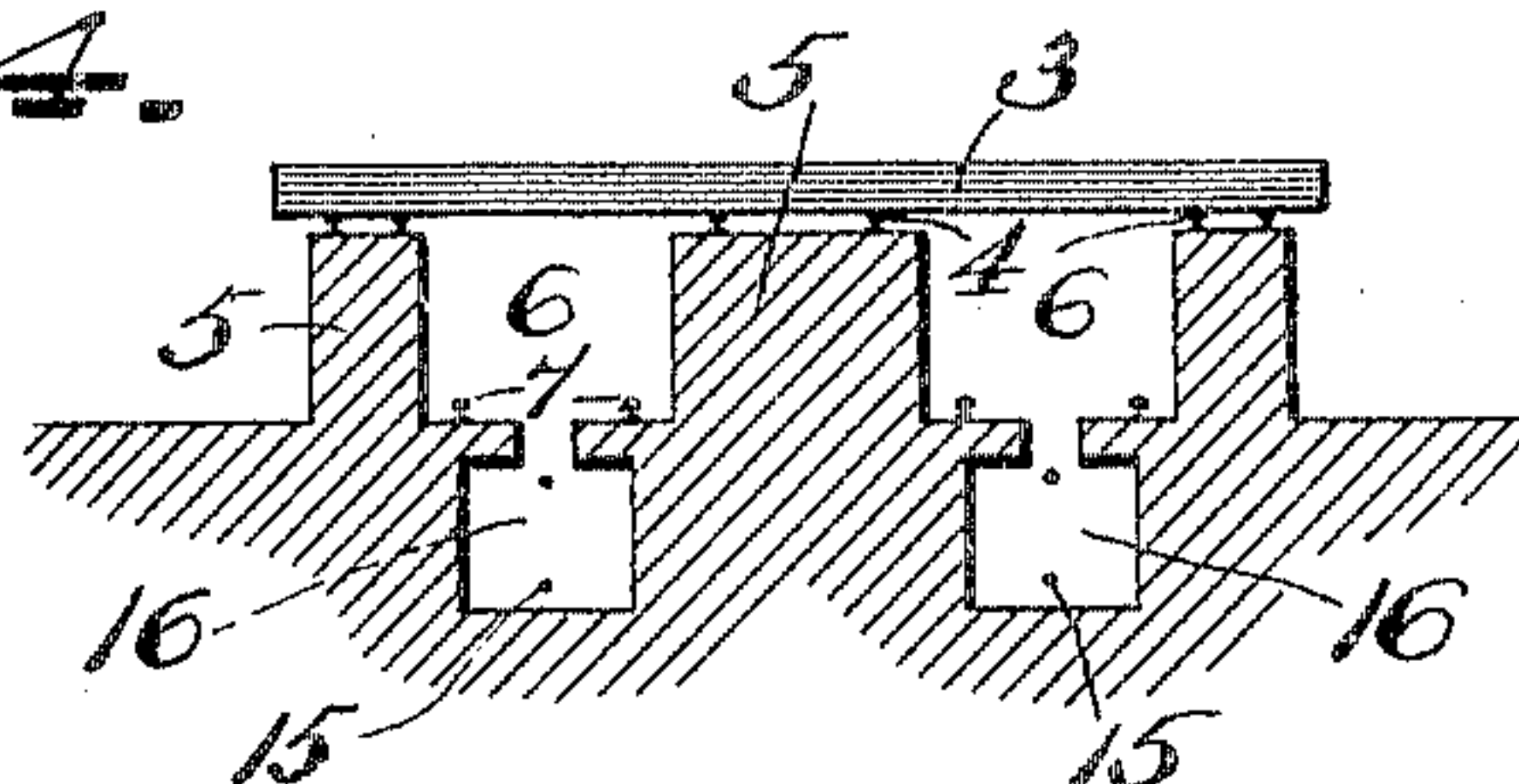
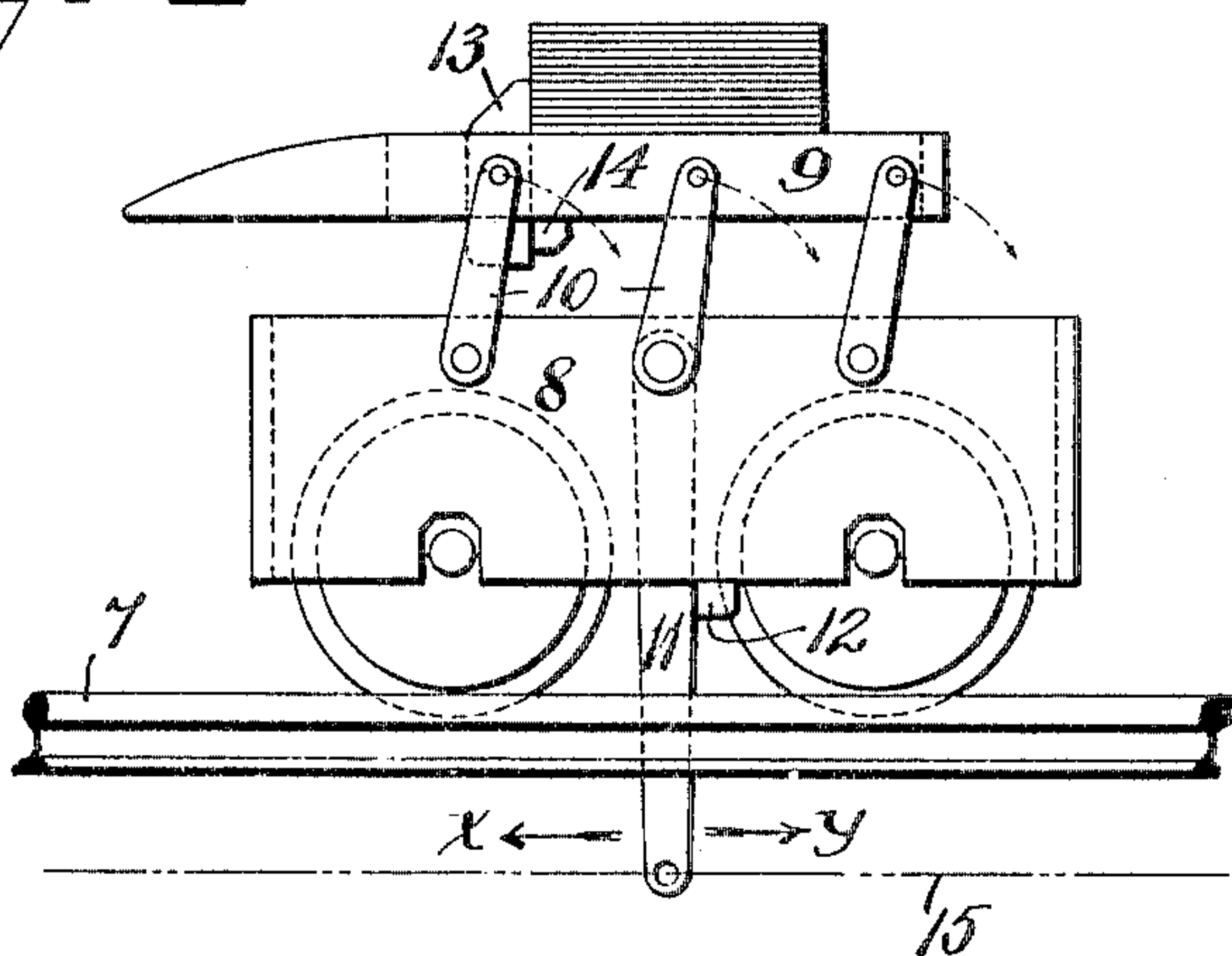


Fig. 5



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# UNITED STATES PATENT OFFICE.

GEORGE SCHUHMANN, OF READING, PENNSYLVANIA, ASSIGNOR TO READING IRON COMPANY, OF READING, PENNSYLVANIA, INCORPORATED.

## FURNACE-CHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 793,806, dated July 4, 1905.

Application filed January 20, 1905. Serial No. 242,033.

*To all whom it may concern:*

Be it known that I, GEORGE SCHUHMANN, a citizen of the United States, residing in the city of Reading, county of Berks, and State of Pennsylvania, have invented certain new and useful Improvements in Furnace-Charging Apparatus, of which the following is a specification.

My invention relates to apparatus adapted more particularly for facilitating the handling of skelp in tube-making, the main object being to provide for the convenient storage of material in proximity to the furnace and the convenient carriage of the same as required into furnace-charging position.

In supplying skelp for a tube-making furnace to operate upon a traveling crane is commonly employed to deliver the same direct from a loaded car to a convenient point in proximity to the furnace, after which it is further handled as required for charging the furnace. In my improved apparatus I provide for concentrating this particular work of the traveling crane so as to leave it free for service elsewhere except at long intervals, this being effected by unloading at one time any convenient quantity of skelp and storing the same in separated piles upon a suitable platform located in proximity to the entrance end of the furnace, and I employ in connection with such platform a reciprocating carriage arranged to travel below the stored piles of material and to successively convey the same into furnace-charging position, all as fully described in connection with the accompanying drawings, and the novel features of which are specifically pointed out in the claims.

Figure 1 is a diagrammatic plan view indicating a preferred arrangement of my improved apparatus in connection with a tube-making furnace. Fig. 2 is an end elevation looking in the direction of arrow 2, Fig. 1, the carriage being shown in furnace-charging position, but its loading position below the piled material upon the storage-platform being also indicated in dotted lines. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, and Fig. 4 is a similar view on the line 4 4 of Fig.

1. Fig. 5 is an enlarged side elevation of the carriage, showing a preferred elevator and catch mechanism for the platform thereof.

An ordinary tube-making furnace is indicated at 1, into which skelp is charged through the entrance end 2 and from the opposite end of which it is discharged for the usual treatment. The storage-platform P, provided to one side of the entrance end of the furnace, is made up, as shown, of a series of parallel supports extending transversely to the furnace and spaced apart so as to form separated points of support for a series of skelp piles 3, placed thereon, as indicated in Figs. 1 and 2, said supports consisting, as shown, of bars 4 4, resting on raised foundations 5 5, between which are provided, as indicated, two carriage-ways 6 6. Upon the depressed floors of these carriage-ways are carriage-tracks 7 7, running parallel with the platform bars or supports and extending beyond the platform and across the front of the furnace. The piles of skelp upon the platform thus span each carriage-way, so as to permit the passage below the spanning portion of a transversely-reciprocating carriage 8, riding upon the tracks 7. The ends of the platform-bars 4 4 nearest in line with the furnace are inclined downward, so as to gradually lower the skelp upon the carriage while it is being conveyed to charging position, as hereinafter described. This reciprocating carriage 8, as shown in Fig. 5, is provided with an elevator table or platform 9, carried upon radius-arms 10 10, which are operatively connected to a depending lever 11, through which the reciprocating power acts upon the carriage, the effect of this preferred construction being that such power exerted in one direction upon the lever and carriage (see arrow *x*) will tend to lower the platform and when exerted in the opposite direction (see arrow *y*) will tend to raise it. A stop 12 is provided to positively limit this raising action, and the platform rests directly upon the carriage-frame when lowered to normal position. When thus lowered; the height of the carriage is such as to permit its free passage under the skelp piles 3 upon the storage-platform.



Upon the forward portion of the carriage-platform 9 I provide a depressible upward projection 13, consisting, as shown, of a pivoted catch which is free to tilt downward as the carriage passes under a skelp pile 3, but which normally stands upright and is so held against a reverse strain by a suitable stop 14.

The reciprocating mechanism, as shown, comprises a cable 15, running in a cable-conduit 16 between the track-rails 7 and driven in reverse directions by any suitable means. This cable is connected at 17 to the depending lever 11 of the carriage, so as to impart a reciprocating movement to the latter in either direction, as desired, and at the same time immediately act upon the carriage-platform to raise or lower the latter, as already described.

Any convenient number of suitable skelp piles 3 may be provided for upon the storage-platform, the traveling crane generally placing a sufficient number for a half-day's run, with the piles spaced apart, as shown, so as to permit of their being separately handled by the carriage. As already stated, the latter is preferably made in two parts, operated jointly, so as to provide properly-distributed support, and thereby prevent objectionable sagging. To bring a pile 3 into charging position in front of the furnace, the empty carriage is moved into the carriage-ways 6 until the tilting projection 13 has passed under the nearest pile and resumed its upright position to the rear of said pile. The cable movement being then reversed, the pull upon the lever 11 first operates to raise the carriage-platform until a considerable portion of the weight of the pile is transferred from the platform to the carriage, the upright projection or catch 13 being also in position to the rear of the pile, so as to positively retain the latter upon the carriage. The weight being thus largely transferred to the carriage, the pile is readily moved outward, sliding upon the platform-supports, until the downward incline of the ends of the latter gradually relieves the sliding friction upon said supports and finally throws the whole weight of the pile upon the carriage. The platform of the latter is thus lowered to its normal position, when the pile is conveyed to the desired charging position in front of the furnace, from which position the skelp is charged into the furnace by any suitable means until a new pile is required, when the described operation is repeated.

The preferred arrangement and construction thus specifically described may obviously be varied without departing from my invention.

What I claim is—

1. The combination with a furnace of a storage-platform located to one side of the entering end thereof and a transversely-reciprocating carriage arranged to travel across said

platform below the supporting-plane thereof and to convey stored material from different portions of said platform into furnace-charging position.

2. The combination with a furnace of a storage-platform located to one side of the entering end thereof and comprising separated supports for the stored material, and a transversely-reciprocating carriage arranged to travel between said separated supports and to convey the stored material therefrom into furnace-charging position.

3. The combination with a furnace of a storage-platform located to one side of the entering end thereof and comprising separated supports for the stored material, and a divided transversely-reciprocating carriage the parts of which are arranged to travel between different of the separated supports and to jointly convey the stored material therefrom into furnace-charging position.

4. In a furnace-charging apparatus a carriage having an elevator-platform, and reciprocating means for said carriage arranged to also effect the raising and lowering of the platform.

5. In a furnace-charging apparatus a reciprocating carriage having an elevator-platform operatively connected to the reciprocating means so as to be normally lowered by reciprocating action in one direction and normally raised by reciprocating action in the opposite direction.

6. In a furnace-charging apparatus a reciprocating carriage having an elevator-platform and elevating means therefor, said platform being provided with a depressible projection above the supporting-surface thereof which projection is operative as a catch in one direction only of the carriage movement.

7. In a furnace-charging apparatus the combination with a storage-platform of a reciprocating carriage arranged to travel under material supported upon said storage-platform, said carriage having an elevator-platform, and means for elevating the latter operated by a reversal of the reciprocating movement.

8. In a furnace-charging apparatus the combination with a storage-platform of a reciprocating carriage arranged to travel freely under material supported upon said storage-platform, reciprocating mechanism therefor, and means connected with said reciprocating mechanism for elevating said carriage beneath said material so as to carry the weight of the latter thereon during its outward movement.

9. In a furnace-charging apparatus the combination with a storage-platform of a reciprocating carriage arranged to travel under material supported upon said storage-platform, said carriage having an elevator-platform and reciprocating means for said carriage arranged to raise and lower said platform.

10. In a furnace-charging apparatus the combination with a storage-platform of a re-



5 reciprocating carriage arranged to travel under material supported upon said storage-platform, said carriage having an elevator-platform operatively connected to the reciprocating means so as to be normally lowered by reciprocating action in one direction and normally raised by reciprocating action in the opposite direction.

10 11. In a furnace-charging apparatus for skelp-plates or the like a storage-platform comprising transversely - arranged spaced-apart supporting-beams for said plates, a depressed carriage-way between said beams, and a cable-conduit in said way.

15 12. In a furnace-charging apparatus for skelp-plates or the like a storage-platform comprising transversely - arranged spaced-apart supporting-beams for said plates, and a depressed carriage-way between said beams the ends of said beams nearest in line to the furnace being inclined downward.

20 13. A furnace-charging apparatus comprising a series of spaced-apart skelp-supporting

beams the ends of which nearest in line with the furnace are inclined downward, a depressed carriage-way between said beams, and a reciprocating carriage the platform of which is normally below the supporting-surface of said beams. 25

14. A furnace-charging apparatus comprising a series of spaced-apart skelp-supporting beams the ends of which nearest in line with the furnace are inclined downward, a depressed carriage-way between said beams, a reciprocating carriage having an elevator-platform the normal height of which is less than that of the beams, and means for automatically elevating and lowering said platform substantially as set forth. 30 35

In testimony whereof I affix my signature in the presence of two witnesses. 40

GEORGE SCHUHMANN.

Witnesses:

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D. M. STEWART.