(No Model.) 2 Sheets—Sheet 1.

S. HIRSCHLER.

TRANSPORTING APPARATUS.

No. 417,825. Patented Dec. 24, 1889.

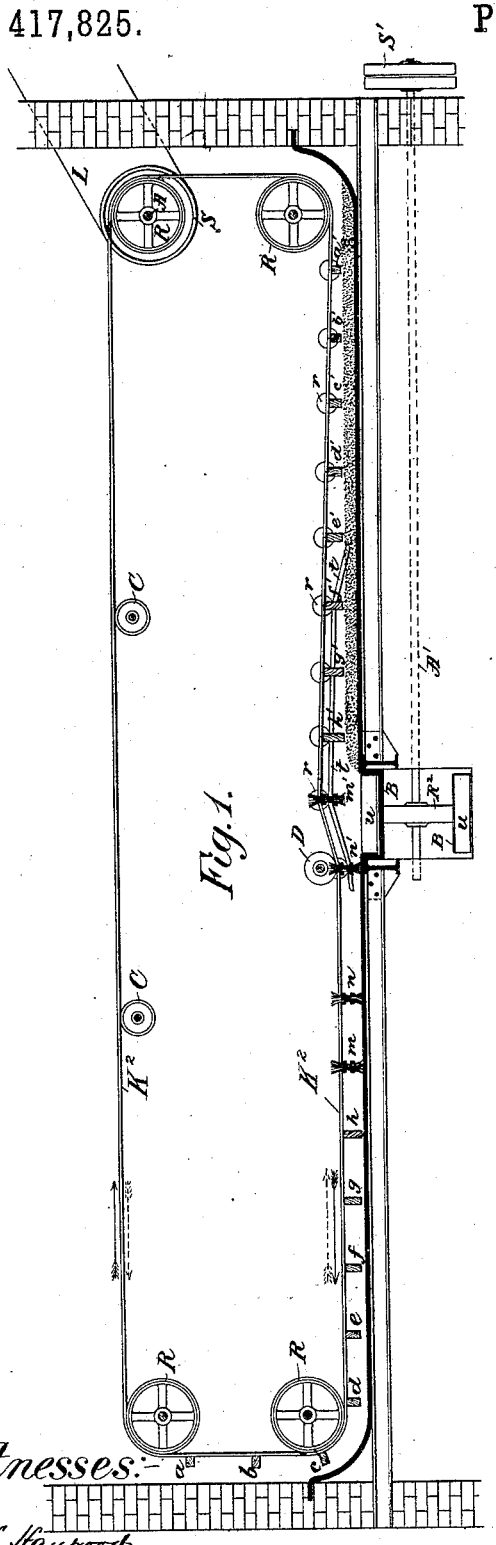

Fig. 1.

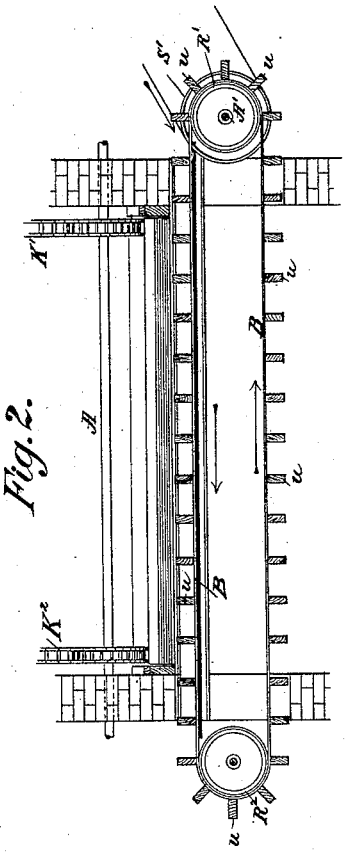

Fig. 2.

Witnesses:-
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C. L. Sundgren

Inventor:-
Siegfried Hirschler
by attorneys
Brown & Griswold

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

S. HIRSCHLER.

TRANSPORTING APPARATUS.

No. 417,825. Patented Dec. 24, 1889.

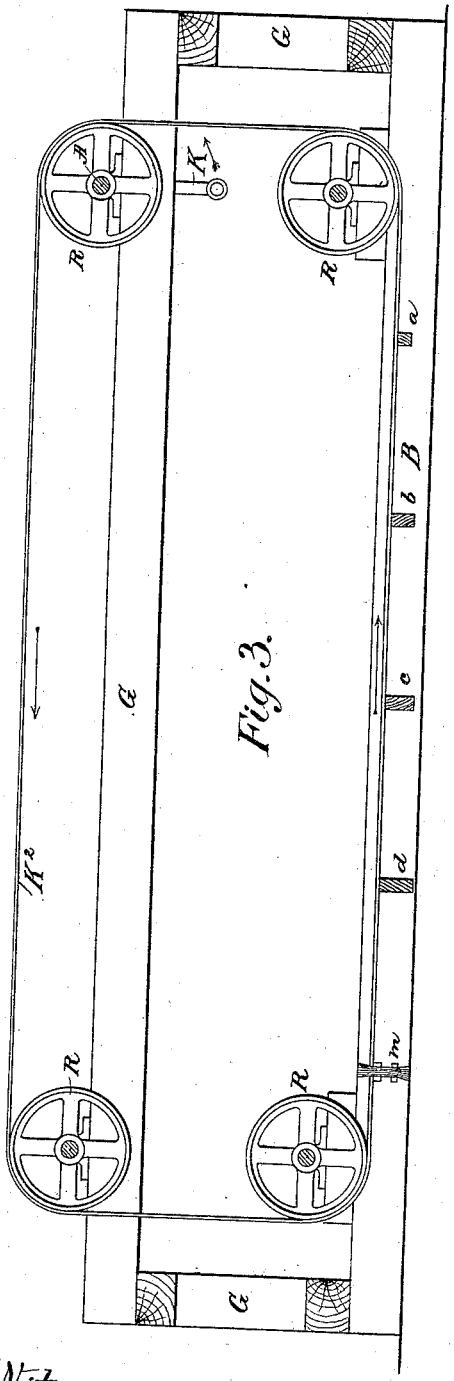

Fig. 3.

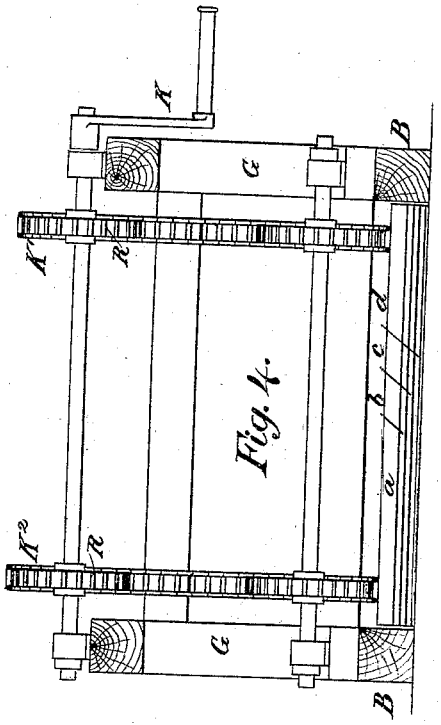

Fig. 4.

Witnesses:-
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UNITED STATES PATENT OFFICE.

SIEGFRIED HIRSCHLER, OF WORMS, GERMANY.

TRANSPORTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 417,825, dated December 24, 1889.

Application filed May 22, 1889. Serial No. 311,750. (No model.) Patented in Germany March 10, 1889, No. 50,013; in France March 30, 1889, No. 197,089; in England April 1, 1889, No. 5,548; in Belgium April 5, 1889, No. 85,702; in Switzerland May 21, 1889, No. 933, and in Luxemburg June 15, 1889, No. 1,145.

To all whom it may concern:

Be it known that I, SIEGFRIED HIRSCHLER, a subject of the Emperor of Germany, and a resident at Worms, in the Empire of Germany, have invented new and useful Improvements in Transporting Apparatus, (for which I have received patents in France, No. 197,089, dated March 30, 1889; in England, No. 5,548, dated April 1, 1889; in Belgium, No. 85,702, dated April 5, 1889; in Switzerland, No. 933, dated May 21, 1889; in Luxemburg, No. 1,145, dated June 15, 1889, and in Germany, No. 50,013, dated March 10, 1889,) of which the following is a specification.

My invention relates to apparatus for clearing, discharging, and conveying malt or grain from malt-kilns, granaries, and similar places.

Hitherto it has been the practice to clear the malt from malt-kilns by hand, which, by reason of the great heat of the kiln, has been found very fatiguing and costly, as it occupied considerable time and a large number of hands.

My invention has, mainly, for object to provide mechanism for performing this operation and for conveying the malt away as it is discharged from the kiln.

The accompanying drawings represent two examples of my invention, both containing its essential features.

Figure 1 is a section of the floor of a malt-kiln fitted with my apparatus for clearing malt from each side thereof toward the center and for conveying it away. Fig. 2 is a section taken at right angles to Fig. 1. Fig. 3 is a view of a portable apparatus adapted to be easily moved to any part of a kiln or large warehouse for effecting the removal of a portion of the malt, grain, or the like therefrom. Fig. 4 is a view taken at right angles to Fig. 3.

The apparatus adapted to clear malt from each side of the malt-kiln and to convey it away, as illustrated in Figs. 1 and 2, comprises two endless chains or bands K′ K², running over chain-wheels R R R R, each pair of which is keyed to a common shaft. The chain-wheels are operated by a pulley S, fixed on the shaft A of one pair of the said wheels, and driven by a belt L from a steam-engine or other suitable source of power. The chains K′ K² carry two sets of transverse boards or scrapers *a b c d e f g h* and *a′ b′ c′ d′ e′ f′ g′ h′*, of varying depths, extending across the floor of the kiln or the like, so that each succeeding scraper of a set shall enter deeper into and carry along a thin layer of the grain or other substance. The chains K′ K² also carry two sets of brushes *m n* and *m′ n′*, which extend across the kiln and follow the last and deepest scrapers *h* and *h′* and completely clear the floor.

I provide one of the sets of boards or scrapers and brushes with rollers *r* at each end, running on rails *t*, so as to raise the said scrapers and brushes above and clear of the material on one side of the chamber after they have cleared the other side of the chamber.

The chains K′ K² are intended to travel in opposite directions alternately, thereby causing one set of scrapers and brushes to clear the material from one side of the chamber and the other set to clear it from the other side of the chamber to a conveyer.

The wheels or rollers C serve to carry the upper part of the chain, and the wheel D serves to guide the lower part.

The conveyer, which in this case is arranged in the center of the floor and receives the material as it is cleared from each side of the chamber, consists of an endless band B, having boards *u* placed at intervals across it, the band passing over two pulleys R′ and R², driven by suitable means, such as the shaft A′ and pulley S′. The conveyer would, however, obviously be arranged at one side of the floor when only one set of scrapers and brushes is employed.

The operation of the apparatus is as follows: As in the present case the conveyer is situated in the center of the kiln, the clearing boards and brushes are caused to move toward the center. The clearing is therefore effected by two distinct operations—that is to say, the left side of the floor of the kiln is cleared first and then the right side is cleared.

The drawings represent the apparatus with the parts in the position they occupy after

having cleared the left side of the kiln by means of the boards a' b' c' d' e' f' g' h' and brushes m' n' through the chains moving in the direction indicated by the dotted arrows.

In order to clear the right-hand side of the kiln, the movement of the chains K′ K² is reversed, so that the chains and clearing boards and brushes shall move in the opposite direction. (Indicated by the plain arrows.) The clearing-boards a b c d e f g h then move along until the first board a reaches the material and removes the first thin layer. The next board c, being made a little wider than the previous board a, enters deeper into the material, and consequently removes another thin layer, and so on till the last board h, extending to the floor, removes the last layer from the bottom. Any material which is left behind is then swept along by the first brush m, and finally all dust is properly swept away by the second brush n, and the clearing operation is completed.

The manner in which the left-hand side of the kiln is cleared by the boards a' b' c', &c., and brushes m' n' is practically the same as that described for the right-hand side, and will be understood without further description.

If the conveyer be placed at one side of the apparatus, which is especially recommended in the case of small kilns, the chains would only have one set of planks a b c d e f g h and brushes m n, which would be made to move in one direction only, the work being done in the manner before described.

When the apparatus is arranged to be worked by power, it can be fitted with an automatic stop, which at the end of one or several rotations would arrest its movement.

The portable apparatus represented in Figs. 3 and 4 also comprises two endless chains K′ and K², running over the chain-wheels R, each pair of which is keyed to a common shaft, and is worked by means of a crank-handle K. The boards a b c d and brush m are made as before described, and fixed by suitable means to the chains. The shafts of the chain-wheels are supported by a wooden frame G. This frame is mounted on rollers (not shown in the drawings) to facilitate the removal of the apparatus. The conveying-boards work between two longitudinal beams B.

It may be here mentioned that the conveying-boards can be made of wood or other suitable material, and that forks can be used instead of or in combination with the same.

The apparatus can also be employed for transporting green malt in cellars as well as all sorts of grain in granaries and the like.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is—

1. The combination, in an apparatus for removing grain, seeds, and other substances from malt-kilns, granaries, and like places, of a number of boards or scrapers of various depths, and brushes and endless chains for carrying said boards and brushes in a horizontal direction over said substances, substantially as herein described.

2. The combination of the two endless chains K′ K², a series of carrying-wheels R for carrying said chains, a series of shafts, to each of which one pair of said wheels is secured, the scrapers b' c' d' of various depths, and brushes m m', each attached to both of said chains, rollers r, attached to certain of said scrapers, rails t, on which said rollers run, and a pulley S on one of said shafts, all substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIEGFRIED HIRSCHLER.

Witnesses:
JOSEPH PATRICK,
ALVESTO S. HOGUE.