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C. M. SMITH.
CARRIER FOR SILOS.
APPLICATION FILED DEC. 3, 1903.

NO MODEL.

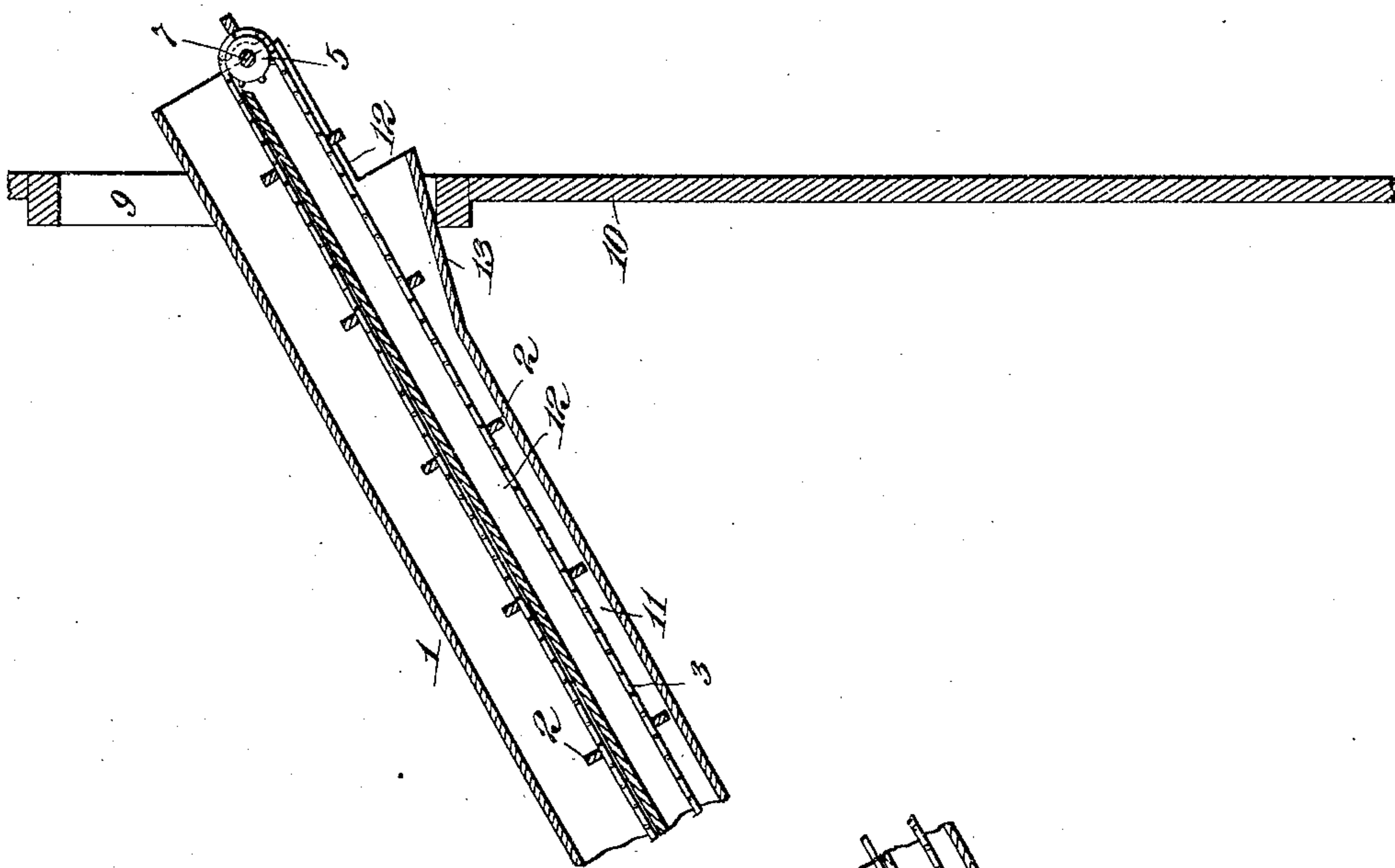


Fig. 1

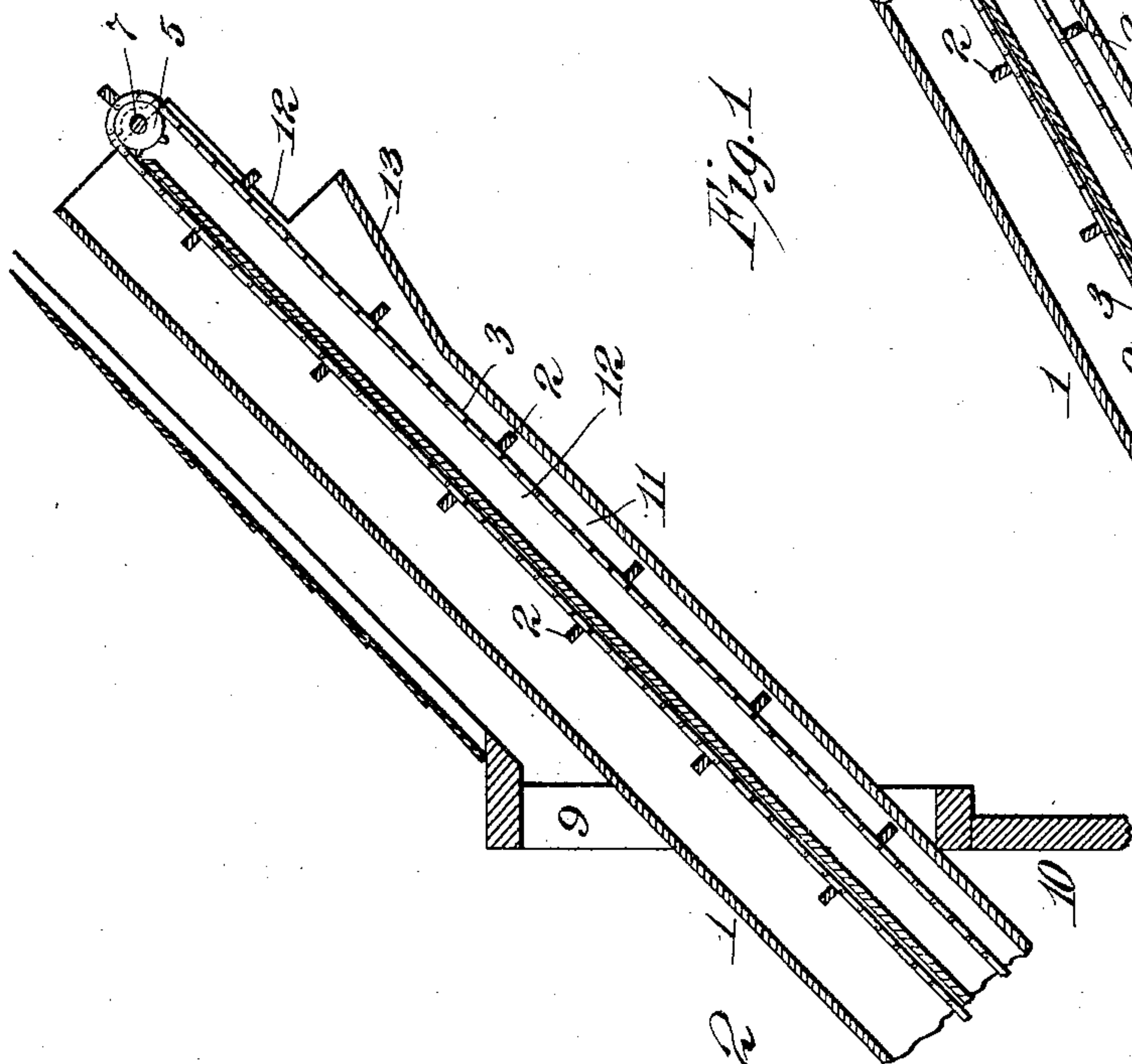
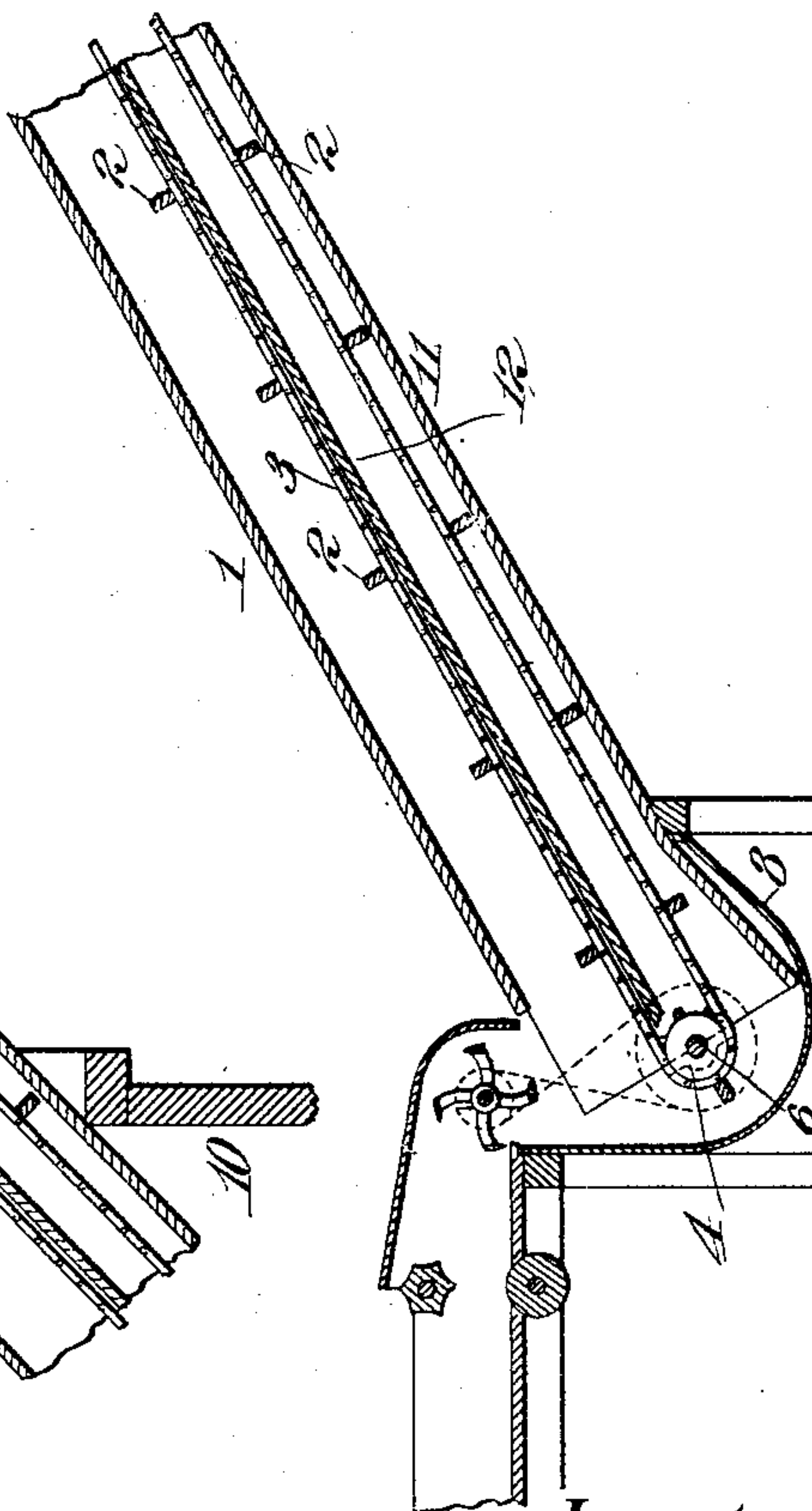


Fig. 2



Witnesses:

Jas. F. Coleman
Geo. Robt. Taylor

Inventor
Clarence M. Smith
By J. J. & J. J.
Attorneys.

UNITED STATES PATENT OFFICE.

CLARENCE M. SMITH, OF OWEGO, NEW YORK.

CARRIER FOR SILOS.

SPECIFICATION forming part of Letters Patent No. 774,794, dated November 15, 1904.

Application filed December 3, 1903. Serial No. 183,592. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE M. SMITH, a citizen of the United States, residing in Owego, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Carriers for Silos, of which the following is a description.

My invention relates to improvements in devices for carrying ensilage from the cutter to the window or other elevated opening of the silo. Generally heretofore these carriers have consisted of a trough-like casing with one end resting within the boot or discharge-outlet of the cutter and the other within the window or other entrance to the upper part of the silo. Within the casing is an elevator in the form of an endless series of flights, each consisting of a bar of wood or metal of a length equal to the inside width of the casing, supported at a point near each end from an endless chain, which passes around sprocket-wheels on shafts located at both ends of the casing, the descending flights passing below the casing in the form of a loop. The shaft at the lower end of the casing is driven by a suitable mechanism, and the ensilage is carried up the casing by the flights and is discharged from the upper end. The common form of carrier is open to two principal objections: First, owing to the moist and sticky nature of the fresh ensilage all of it is not freed from the sides of the flights as the latter pass around the upper sprockets to discharge the ensilage into the silo, but a certain portion of the ensilage elevated is carried back by the descending flights and is dropped upon the ground between the foot of the silo and the cutter or is blown completely away. It is found in practice that after a day's work a great deal of ensilage will be dropped upon the ground and must be collected and reelevated, and, in addition, if there is any wind a great deal of ensilage will be blown completely away and cannot be recovered. The second objection to the ordinary form of carrier is that the portion of the chains which carries the returning flights is unsupported and hangs down some distance from the casing, forming a loop of considerable curvature. This makes it necessary in

supporting the upper end of the carrier within the window to build up a frame or other support from the sill in order to allow the returning flights to clear the sill. This support must engage with the sides of the carrier and be clear of the returning flights. If for any reason it is desired to introduce the carrier farther into the window—as, for instance, when the silo is nearly full it is desired to discharge the ensilage to the rear wall of the silo—the temporary support for the upper end of the carrier must be rebuilt, which necessitates stopping the machinery and which entails considerable delay and expense.

It is the object of the invention to overcome both of these objections.

My invention comprises a return-casing applied to the ordinary form of carrier to support the returning flights and provide a trough to prevent the escape of ensilage which may be carried over with the returning flights and fails to be introduced into the silo. This return-casing is provided with flaring ends, so that it will serve as a guide for the entrance of the ensilage at the top and support the carrier clear of the bottom of the boot at the bottom. The return-casing also serves as a support for the carrier upon the window-sill and obviates the necessity of building a trestle or other support, and the flaring upper portion of the casing serves as a support for the carrier when the latter is introduced but a short distance within the window.

In order to better understand the nature of the invention, attention is directed to the accompanying drawings, in which—

Figure 1 shows a sectional view of a carrier embodying my invention, and Fig. 2 is a detail view showing the upper end of the carrier when introduced a considerable distance into the silo.

In both of the views like parts are designated by the same numerals of reference.

The casing 1, with the elevator, consisting of the system of flights 2, carried by the endless chains 3, which pass over the sprocket-wheels 4 and 5 on the shafts 6 and 7, respectively, is of the usual form. Motion is imparted to the chains in the usual manner, and the lower end of the casing rests within the

boot 8 of the cutter, and the upper end passes through the window 9 of the silo 10 in the usual manner.

Below the casing 1 is a return-casing 11, supported upon sides 12 and upon the upper surface of which the descending flights slide in the same manner as they slide within the casing 1.

At the upper end of the return-casing 11 a portion 13 flares, as shown, so that the space between the return-casing 11 and the casing 1 at that point is increased, and the return-casing 11 and sides 12 do not extend quite to the upper end of the casing 1, so that the return-casing will not act as an obstruction to the entrance of ensilage over the upper end of the casing into the silo, the elevated ensilage being free to fall clear of the upper edge of the return-casing even if such casing is inclined, as shown in Fig. 2. The lower extremity of the return-casing may be flared, as it is at the top, whereby a better support is given to the lower end of the carrier within the boot of the cutter; but such flaring at the lower end of the return-casing is not necessary.

The flared portion 13 in addition to increasing the space between the return-casing and the casing at the upper extremity serves as a support for the upper end of the carrier when the upper extremity rests upon the sill and prevents it from becoming accidentally displaced.

In operation the ensilage is carried from the boot or directly from the cutter up the casing 1 by means of the elevator in the usual manner and is deposited in the silo through the window. Any ensilage which may remain in contact with the flights instead of being carried out of the window and dropped upon the ground between the silo and the cutter or blown away and lost will be carried back into the boot through the return-casing and will be afterward elevated, as before, and deposited in the silo.

When it is desired to introduce the upper end of the carrier farther into the window, it is but necessary to move the cutter toward the silo and at the same time push the carrier farther into the window, as shown in Fig. 2. The return-casing will still rest upon the sill and keep the returning buckets clear of the sill

without the need of a framework or other support being built to sustain the upper end of the carrier.

The invention may be applied to carriers used for elevating materials other than ensilage by modifying the structure to suit the different conditions necessarily to be met with.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A portable ensilage-elevator comprising a box-like structure carrying an endless system of flights within the box, with a return-casing, against which the descending flights rest, the whole constituting a portable and unitary structure.

2. A portable ensilage-elevator comprising a box-like structure carrying an endless system of flights, and means for supporting them within the box, with a return-casing against which the descending flights rest, with an opening formed in the discharge end, the opening being made in the return-casing, and ending at such a point below the upper extremity of the system of flights that elevated ensilage will be free to fall clear of the lower edge of such opening.

3. A portable ensilage-elevator comprising a box-like structure carrying an endless series of flights and means for supporting them within the box, with a bottom against which the descending flights rest, the bottom being flared at its upper end.

4. A portable ensilage-elevator comprising a box-like structure carrying an endless series of flights and means for supporting them within the box, with a return-casing against which the descending flights rest, the said return-casing being flared so as to form a support for the elevated end of the box, the upper edge of the return-casing ending at such a point below the upper portion of the system of flights that elevated ensilage will be free to fall clear of such upper edge.

This specification signed and witnessed this 25th day of November, 1903.

CLARENCE M. SMITH.

Witnesses:

WHEELER STEDMAN,
F. E. NIXON.