

No. 770,856.

PATENTED SEPT. 27, 1904.

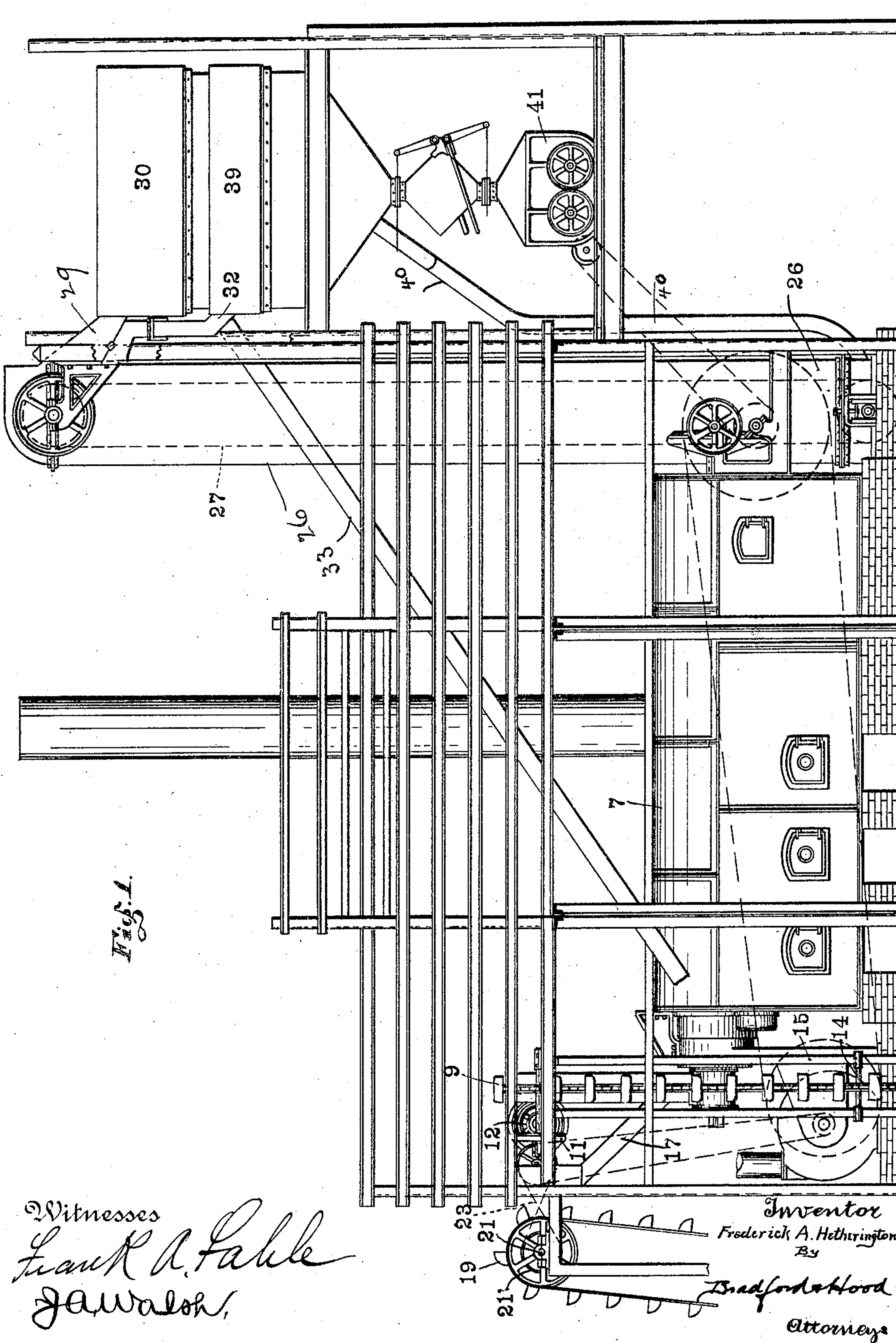
F. A. HETHERINGTON.

COMBINED FEEDER AND DISCHARGE FOR DRIERS.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



No. 770,856.

PATENTED SEPT. 27, 1904.

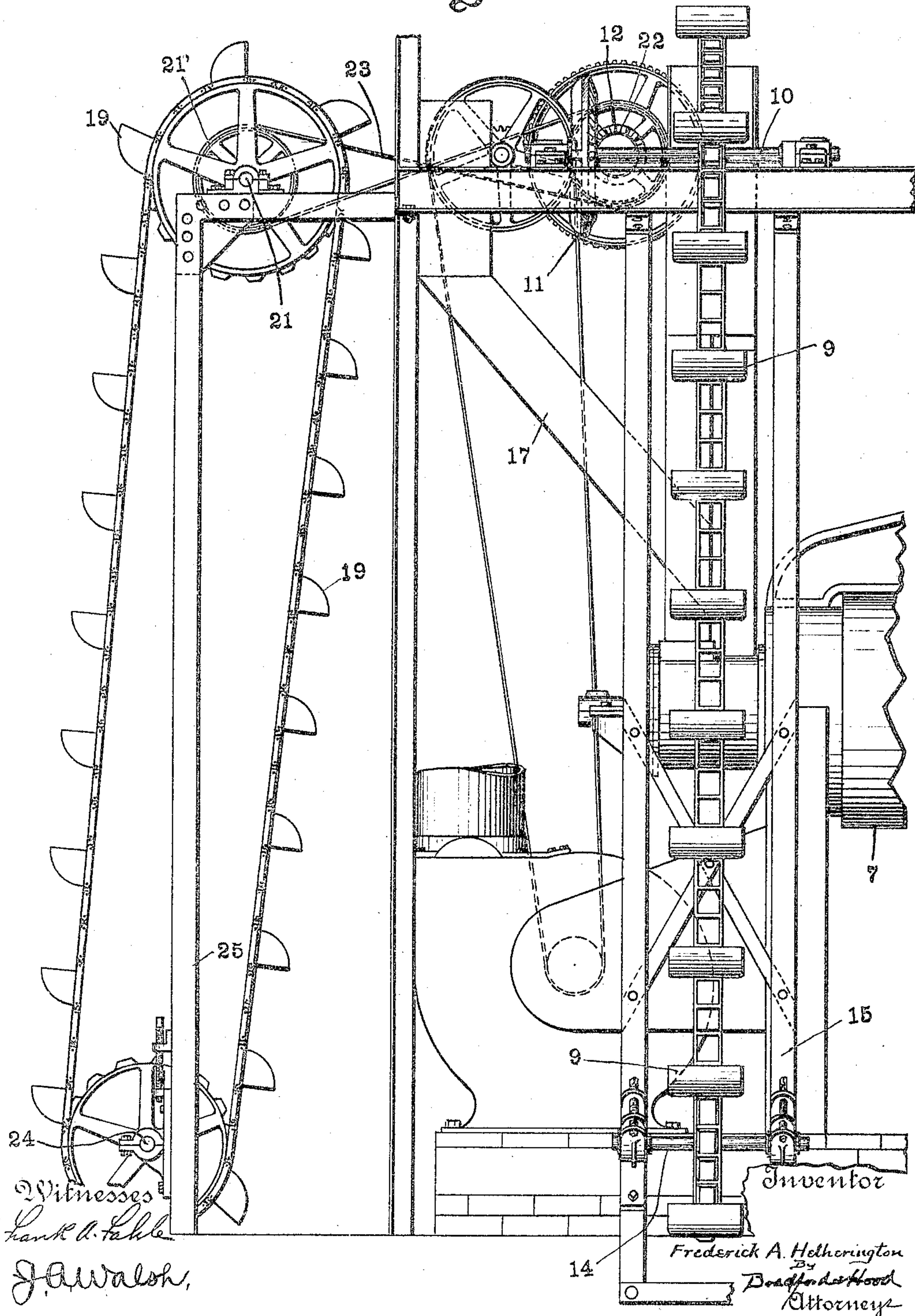
F. A. HETHERINGTON.
COMBINED FEEDER AND DISCHARGE FOR DRIERS.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.

4 SHEETS—SHEET 2.

Fig. 2.



No. 770,856.

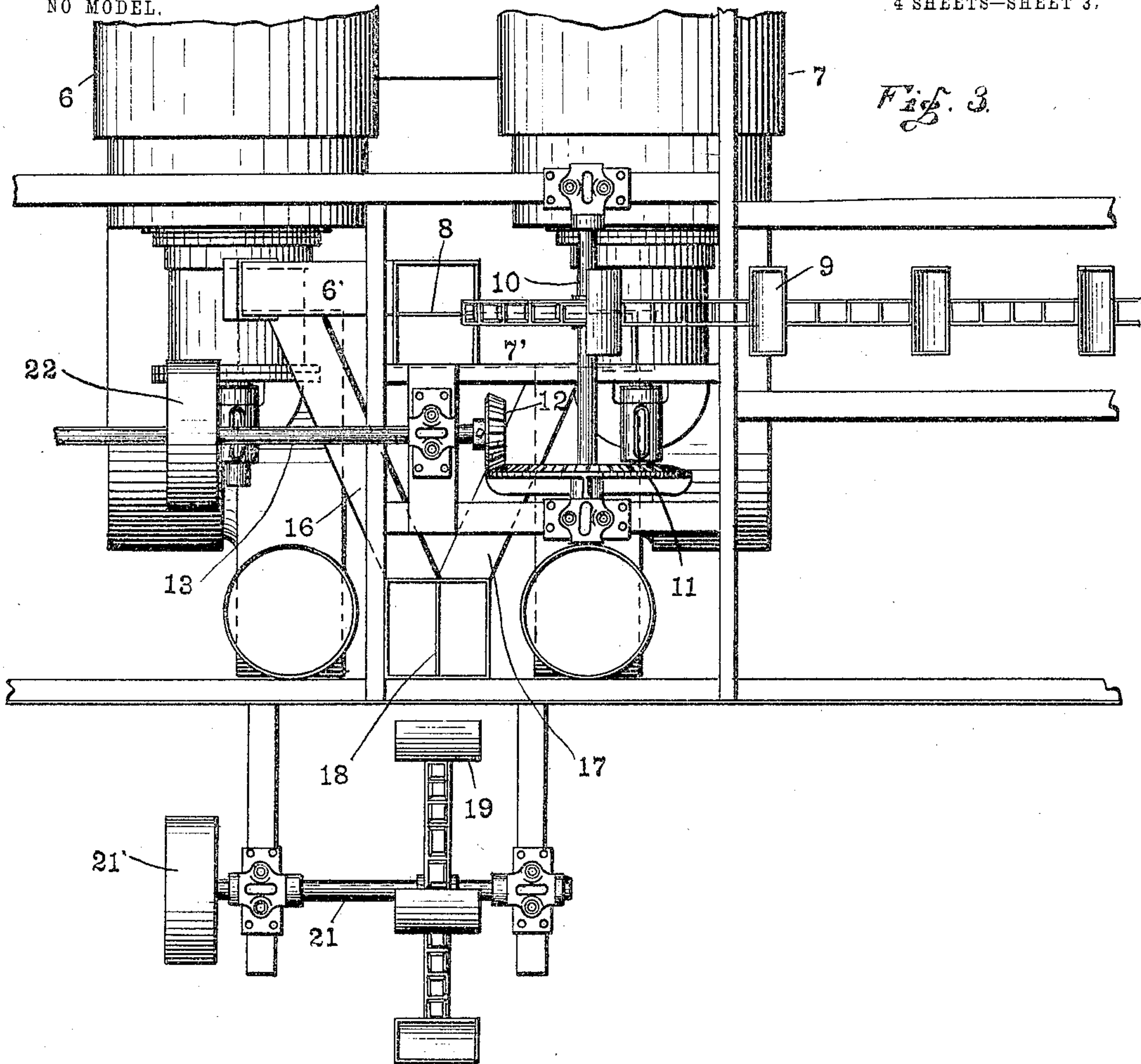
PATENTED SEPT. 27, 1904.

F. A. HETHERINGTON.
COMBINED FEEDER AND DISCHARGE FOR DRIERS.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses

Frank A. Fable
J. A. Walsh

Inventor
Frederick A. Hetherington

By
Bradford & Hood
Attorneys

No. 770,856.

PATENTED SEPT. 27, 1904.

F. A. HETHERINGTON.
COMBINED FEEDER AND DISCHARGE FOR DRIERS.

APPLICATION FILED FEB. 29, 1904.

NO MODEL.

4 SHEETS—SHEET 4.

Fig. 5.

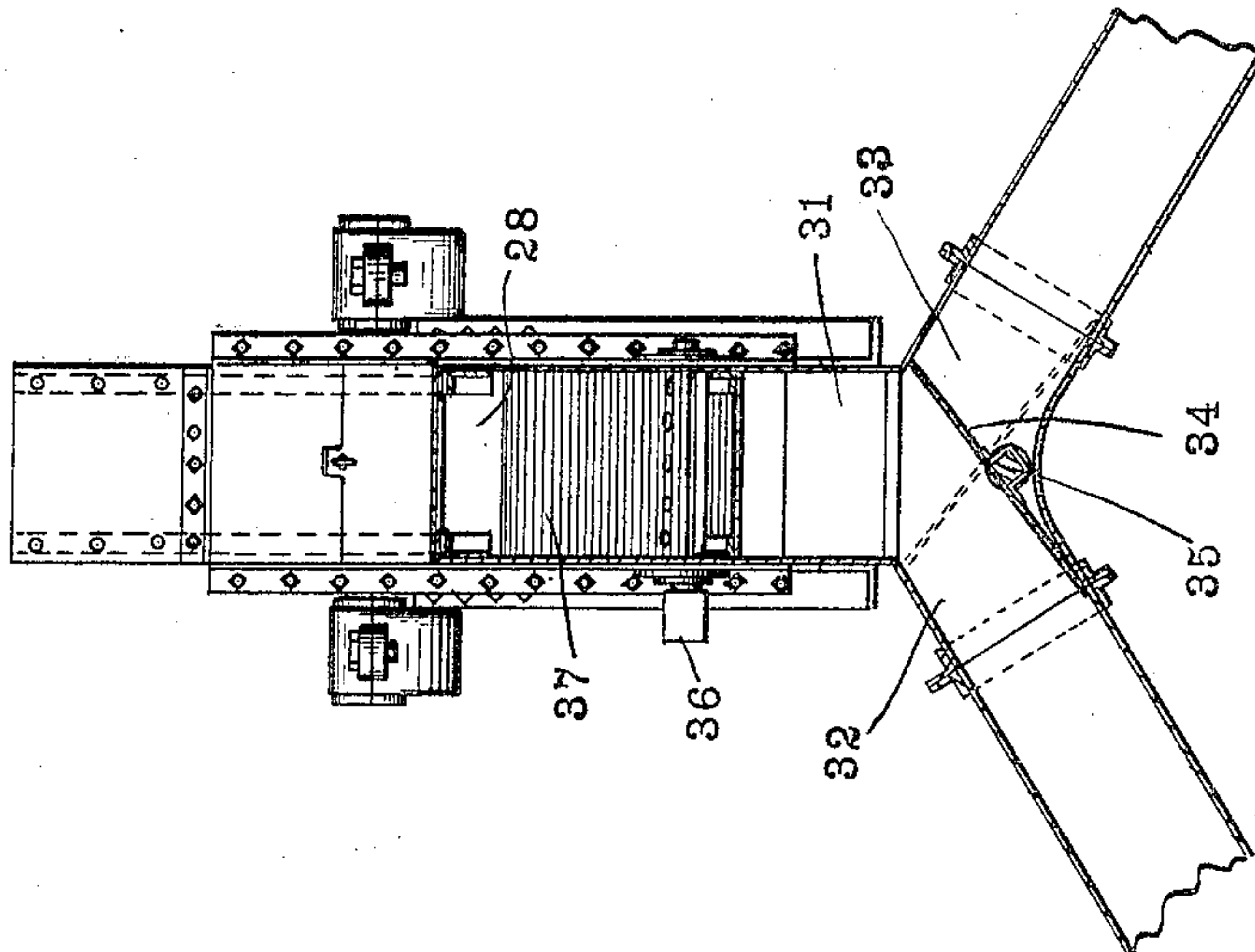
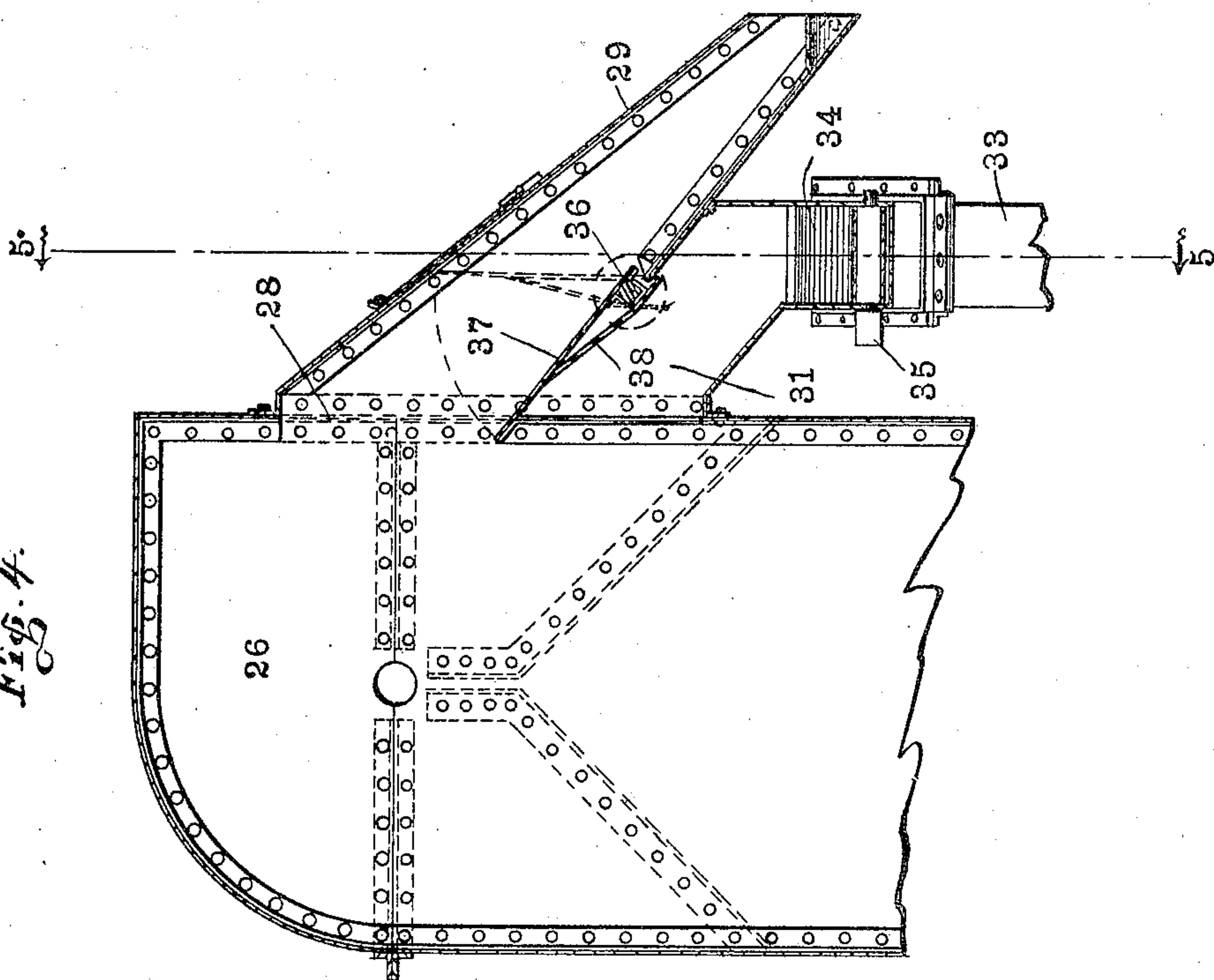


Fig. 4.



Witnesses
Frank A. Fable
J. A. Walsh

Inventor
Frederick A. Hetherington
By
Bradford Hood
Attorneys

UNITED STATES PATENT OFFICE.

FREDERICK A. HETHERINGTON, OF INDIANAPOLIS, INDIANA.

COMBINED FEEDER AND DISCHARGE FOR DRIERS.

SPECIFICATION forming part of Letters Patent No. 770,856, dated September 27, 1904.

Application filed February 29, 1904. Serial No. 195,857. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. HETHERINGTON, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in a Combined Feeder and Discharge for Driers, of which the following is a specification.

My invention relates to an improved means for feeding different materials to a drier or other mechanism by which materials are to be treated and in mechanism for controlling and directing the discharge from said mechanism.

My device has been especially designed for use in connection with the driers of asphalt plants, especially of the stationary type; but the said invention is not necessarily limited to such specific use.

It is a decided convenience in asphalt plants to use the same drier for drying and heating the sand for the topping course and also the stone for the binder course; but at the present time considerable bother and loss of time result from such double use of the driers, as heretofore no adequate means has been provided for keeping the different materials separated and it has been necessary to shift any surplus.

The object of my present invention is therefore to provide means by which two different materials, such as sand and binder-stone, may be fed to a drier in succession without requiring a removal of either from its most convenient feeding position and also to provide means by which the said material may be properly discharged from the drier and directed to different positions in the plant.

The accompanying drawings illustrate my invention as applied to a two-drier stationary plant.

Figure 1 is a side elevation of my improved apparatus. Fig. 2 is a side elevation of the feeding mechanism. Fig. 3 is a plan of the feeding mechanism. Fig. 4 is a side elevation of the upper end of the discharge-elevator and attached discharge-spouts. Fig. 5 is a section on line 5 5 of Fig. 4.

In the drawings, 6 and 7 indicate a pair of driers of any well-known type. Leading into drier 6 is a feed-spout 6', and leading into drier

7 is a feed-spout 7', the upper ends of said spouts being brought together side by side and separated one from the other by a central partition 8. Arranged in line with the partition 8 is an endless elevator 9, the upper end of which is supported upon a shaft 10, driven by means of a pair of gears 11 and 12 and a shaft 13. The lower end of the elevator 9 is supported upon a shaft 14, supported in the usual manner at the lower end of an inclined frame 15, the lower end of which preferably rests upon the ground.

Extending from the side of spout 6' is a spout 16, and extending from one side of spout 7' is a spout 17, the two spouts being brought together at their upper ends and separated one from the other by a central partition 18, the partition 18 lying, preferably, at substantially right angles to partition 8. Arranged opposite partition 18 is an endless elevator 19, the upper end of which is supported by a shaft 21, carrying a driving-pulley 21', said pulley being arranged opposite a pulley 22, carried by shaft 13. A belt 23 (see Fig. 1) connects the pulleys 21' and 22. The lower end of elevator 19 is supported upon a shaft 24, mounted in suitable bearings at the lower end of a frame 25. By this arrangement the lower ends of the two elevators may be widely separated, so that around the foot of one may be placed binder-stone and around the foot of the other may be placed sand or other desired materials. Material shoveled into the path of the buckets of elevators 9 will be carried up by said buckets and thrown into the two spouts 6' and 7', the partition 8 operating to divide the material substantially evenly between the two spouts, so as to direct to each drier an equal amount of material, and materials shoveled into the path of the buckets of elevator 19 will be carried up and thrown into the two spouts 16 and 17, partition 18 operating to divide the material equally, as in the manner already described.

Leading from the two driers is a single chute or casing 26, into which both driers discharge and within which a suitable endless elevator 27 (indicated by dotted lines in Fig. 1) is mounted in the usual manner. Formed in the upper end of the casing 26 is an open-

ing 28, from which leads a discharge-spout 29, said spout delivering into a storage-bin 30. Spout 29 at the end adjacent the casing 26 is considerably larger than the opening 28, so as to form a pocket 31 below said opening. Leading from said pocket 31 are two diverging spouts 32 and 33, at the junction of which is mounted a valve-plate 34, carried by an oscillating shaft 35, the arrangement being such that valve 34 may be swung so as to close either one of said spouts 32 or 33 and deflect material entering the pocket 31 into the opposite spout. Mounted between spout 29 and pocket 31 is a shaft 36, upon which is secured a valve 37, the free end of which is adapted to rest upon the lower edge of the opening 28, as shown in full lines in Fig. 4. The length of valve 37 is such that when thrown to the position shown in dotted lines in Fig. 4 it will completely close the spout 29 and deflect material into the pocket 31. In order to protect shaft 36, I secure to valve 37 a plate 38, which is projected down over the shaft, so as to prevent any material which is passing from casing 26 into pocket 31 from striking the shaft. Spout 32 is led into a second storage-bin 39, and spout 33 is brought down to a point adjacent elevator 9. If desired, the spout 33 may be led to any other convenient point for the deposit of the overflow which is intended to pass through said spout. Leading into boot 26 is a spout 40, into which the contents of either bin 30 or 39 may be drained.

In operation the sand will be piled about one of the elevators 9 or 19 and the binder-stone be piled about the foot of the other elevator. If sand be the material being dried, valve 37 will be thrown down to the position shown in full lines in Fig. 4 and the sand will be fed into the drier—say by the elevator 9. If for any reason, such as a surplus of sand or a burning of the sand, it is desired to prevent its flow into the storage-bin 30, valve 37 is thrown up to the position shown in dotted lines in Fig. 4 and valve 34 is thrown into the position shown in dotted lines in Fig. 5, so that the material passing from the drier will be guided from the casing 26 into pocket 31 and from thence into the overflow-spout 33, where it may be thrown into wagons or be deflected to any suitable place. If the operator desires to heat binder-stone, the sand about the elevator need not be disturbed; but after the sand in the driers has been discharged the binder-stone may be fed into the driers by the elevator 19. In this case valve 37 is thrown up to the position shown in dotted lines in Fig. 4 and valve 34 is thrown into the position shown in full lines in Fig. 5, the heated binder-stone being then deflected from the casing 26 through spout 32 into the storage-bin 69. Any surplus or improperly-treated binder-stone may be deflected into and through spout 33, if desired, by shifting the

valve 34. By this means the paving materials which require a preliminary heating and treating may be so treated by the same driers without any loss of time whatever in shifting from one material to the other.

I claim as my invention—

1. The combination, with an elevator, of an inclosing casing having an opening formed in one side, a discharge-spout leading from said opening, a movable valve normally forming a portion of the bottom of said discharge-spout and having its free end resting at the lower edge of said opening, a pocket formed in said discharge-spout beneath said valve, means for swinging said valve so as to close the discharge-spout and open the pocket, and a discharge-spout leading from said pocket.

2. The combination, with an elevator, of an inclosing casing having an opening formed in one side, a discharge-spout leading from said opening, a movable valve normally forming a portion of the bottom of said discharge-spout and having its free end resting at the lower edge of said opening, a pocket formed in said discharge-spout beneath said valve, means for swinging said valve so as to close the discharge-spout and open the pocket, a pair of diverging discharge-spouts leading from said pocket, a valve mounted at junction of said pair of discharge-spouts, and means for swinging said valve so as to close either of said diverging spouts.

3. The combination with a drier, of a pair of elevators discharging into said drier, an elevator leading from the drier, a main discharge-pipe leading from said elevator, a second discharge-pipe leading from the first discharge-pipe, a valve mounted between said discharge-pipes, and means for shifting said valve, substantially as and for the purpose set forth.

4. In an asphalt plant, the combination, with a drier, of a pair of elevators discharging into said drier, an elevator leading from said drier, a main discharge-spout adapted to receive material from said elevator, a valve forming a portion of the bottom of said spout, a pair of diverging spouts leading from a point beneath said valve, means for shifting said valve, a second valve arranged at the junction of said diverging spouts, and means for shifting said second valve so as to close either of said diverging spouts.

5. The combination, with a pair of driers, of a pair of chutes one leading into each of said driers and the receiving ends of said chutes arranged side by side in different planes, an elevator arranged to discharge into both of said chutes, a second pair of chutes also leading one into each of the driers and the receiving ends of said chute arranged side by side in different planes, and a second elevator arranged to discharge into both of the second pair of chutes.

6. The combination, with a pair of driers, of

a pair of chutes one leading into each of said
driers and the receiving ends of said chutes
arranged side by side in different planes, an
elevator arranged at right angles to the drier
5 and to discharge into both of said chutes, a
second pair of chutes also leading one into
each of the driers and the receiving ends of
said chutes arranged side by side in different
planes, and a second elevator arranged in line

with the drier to discharge into both of the 10
second pair of chutes.

In witness whereof I have hereunto set my
hand and seal, at Indianapolis, Indiana, this
23d day of February, A. D. 1904.

FREDERICK A. HETHERINGTON. [L. s.]

Witnesses:

ARTHUR M. HOOD,
JAMES A. WALSH.