B. KETELSEN.

EXCAVATING MACHINE.

APPLICATION FILED AUG. 4, 1913.

1,128,003.

Patented Feb. 9, 1915.

5 SHEETS—SHEET 1.

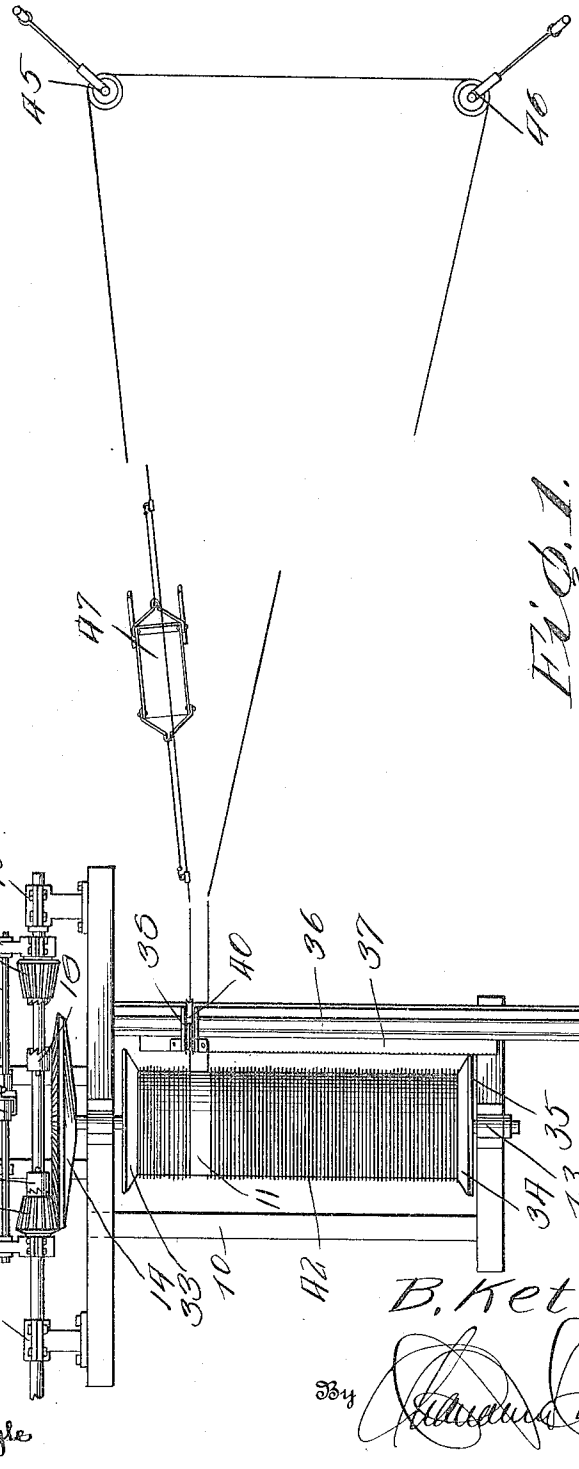


Fig. 1.

Witnesses

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5 SHEETS—SHEET 2.

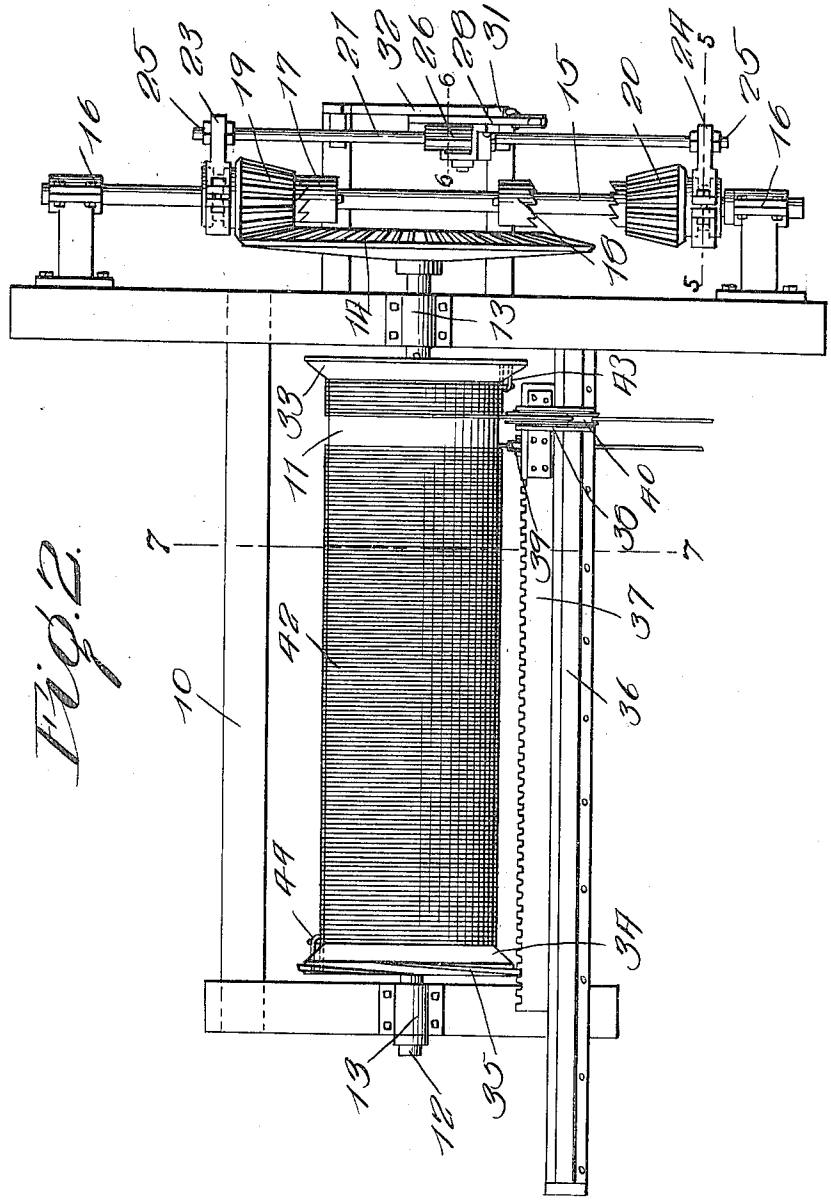


Fig. 2.

Witnesses

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5 SHEETS—SHEET 3.

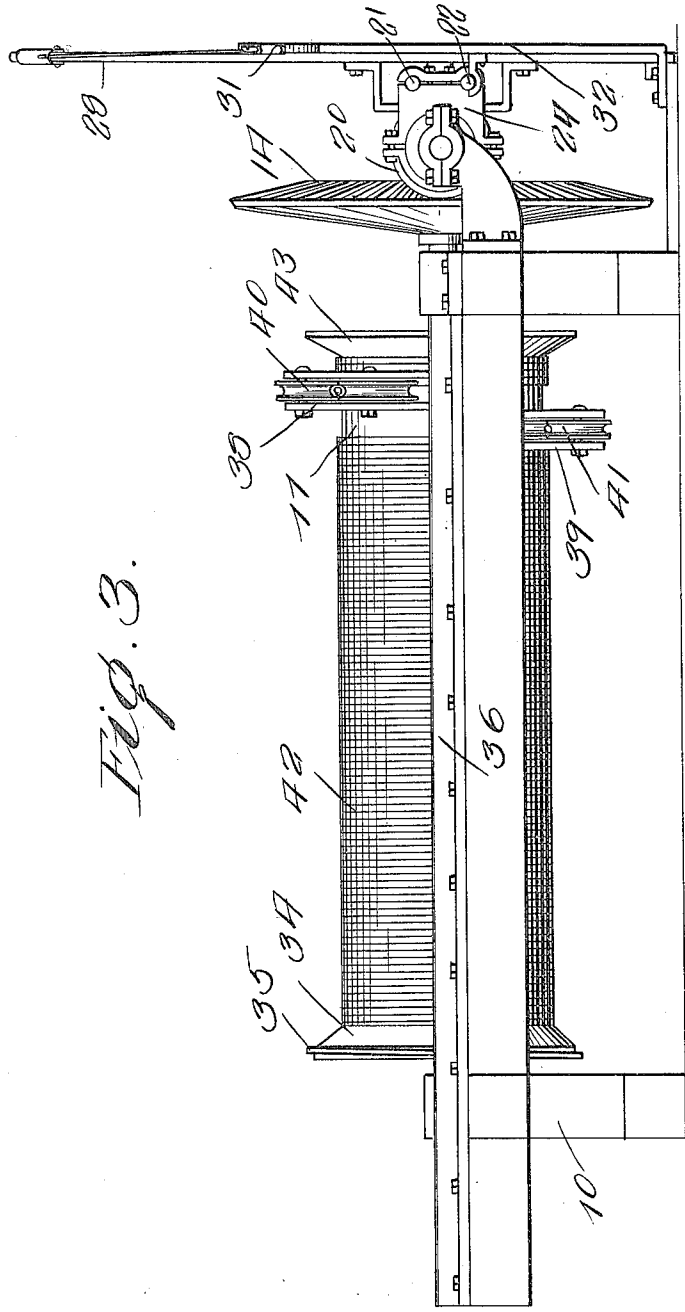


Fig. 3.

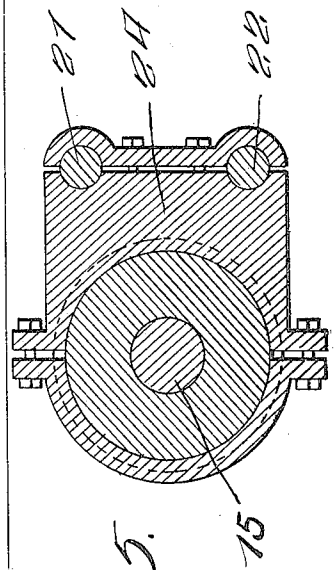


Fig. 5.

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EXCAVATING MACHINE.

APPLICATION FILED AUG. 4, 1913.

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5 SHEETS—SHEET 4.

Fig. 4.

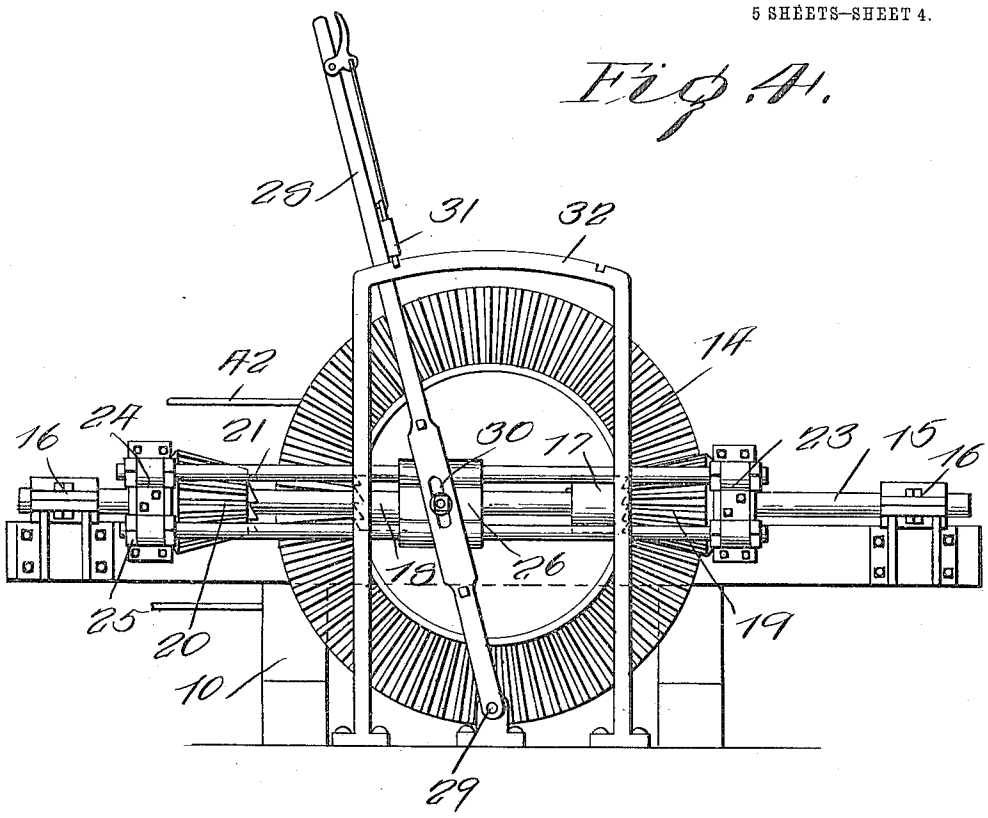
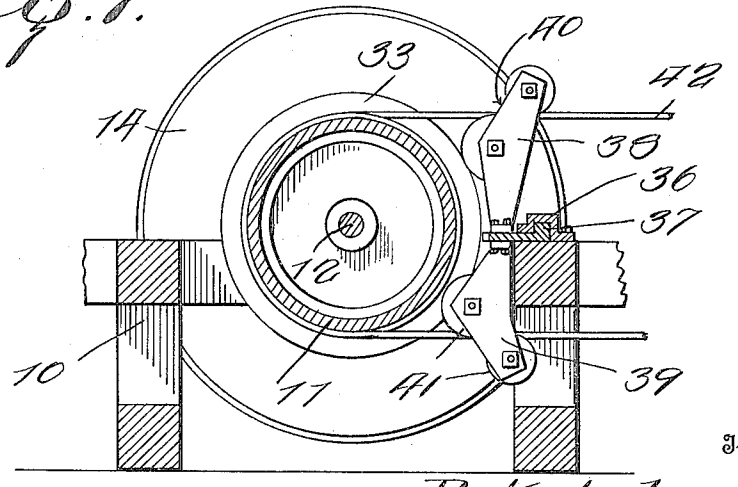


Fig. 7.



Witnesses

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B. KETELSEN.

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5 SHEETS—SHEET 5.

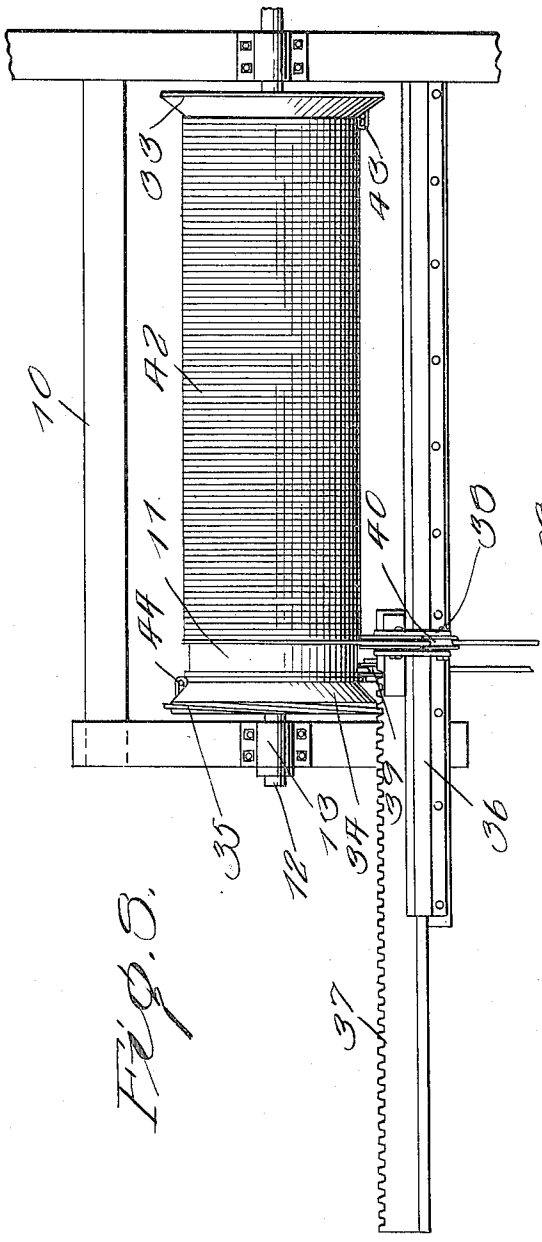


Fig. 5.

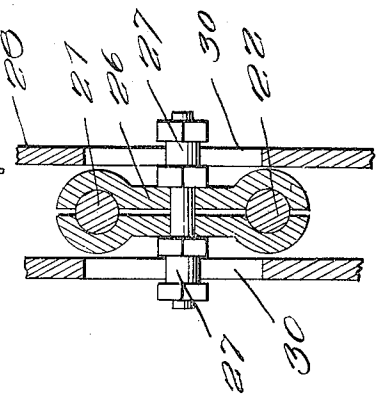


Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

BRODER KETELSEN, OF NELIGH, NEBRASKA.

EXCAVATING-MACHINE.

1,128,003. Specification of Letters Patent. Patented Feb. 9, 1915.

Application filed August 4, 1913. Serial No. 782,864.

To all whom it may concern:

Be it known that I, BRODER KETELSEN, a citizen of the United States, residing at Neligh, in the county of Antelope, State of Nebraska, have invented certain new and useful Improvements in Excavating-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to excavating machines of that general type employing a scraper carrying cable which is operated by a drum.

An object of the present invention is to provide novel means for facilitating the uniform feeding on and paying off of the cable from the drum whereby the length of the cable from the drum to the anchors is maintained constant.

A further object of the invention is to provide a novel sliding rack which is operated by one head of the drum and carries the feeding and paying off sheaves, this rack advancing the sheaves from end to end of the drum to facilitate the uniform paying off and feeding on of the cable.

A still further object of the invention is to provide novel mechanism for reversing the location of the drum when the rack reaches its limit of travel in either direction.

With the above objects in view the invention consists of certain novel details of construction and combination of parts hereinafter fully described and claimed, it being understood that various modifications may be made in the minor details of construction within the scope of the appended claims.

In the accompanying drawings illustrating this invention:—Figure 1 is a plan view of the machine. Fig. 2 is a plan view of the drum and operating mechanism. Fig. 3 is a side elevation of the parts shown in Fig. 2. Fig. 4 is an end elevation. Fig. 5 is a cross sectional view on the line 5—5 Fig. 2. Fig. 6 is a cross sectional view on the line 6—6 Fig. 2. Fig. 7 is a cross sectional view on the line 7—7 Fig. 2. Fig. 8 is a plan view showing the rack advanced from the position shown in Fig. 2.

Referring now to the drawings in which like characters of reference designate similar parts, 10 designates a suitable frame upon which a drum 11 is supported, the drum shaft 12 being journaled in bearings 13 carried by the frame, and being equipped at one end with a large bevel gear 14 by means of which the drum is rotated. A driving shaft 15 is journaled in bearings 16 carried by the frame and extends transversely to the drum shaft. This driving shaft may be operatively connected to any desired motive power, and is constantly rotated in the same direction.

Keyed to the driving shaft within the borders of the bevel gear are two clutch collars 17 and 18. Shiftably mounted on the driving shaft outside of the clutch collars are idler clutch bevel gears 19 and 20. These bevel gears are so spaced apart that either may be shifted into engagement with the related clutch collar and related side of the bevel gear 15, or both may be disposed out of engagement therewith. When the gear 20 is in engagement with the collar 18 it imparts rotation to the drum in one direction, and when the gear 19 is in engagement with the collar 17 it imparts rotation to the drum in the opposite direction, and when neither gear is in such engagement the drum remains quiescent.

For connecting the clutch bevel gears 19 and 20 I provide a pair of parallel rods 21 and 22 which are terminally passed through suitable openings in bearing boxes 23 and 24 which carry the bevel gears, the rods being rigidly secured by nuts 25. These rods pass through a two-piece clamp 26 best shown in Fig. 6, the clamp carrying gudgeons 27. A shift lever 28 is pivotally connected as at 29 to the frame 10 and is provided with longitudinal slots 30 which receive the gudgeons, the lever being equipped with the usual latch 31 and rack 32 for locking the lever at either limit of its movement. Upon the lever being shifted either clutch gear may be engaged with the bevel gear 14 of the drum to impart the desired rotation to the drum.

The drum is equipped with the usual flange heads 33 and 34, the head 34 most remote from the bevel gear 14 being equipped with a screw thread 35. Mounted in a channeled guide bar 36 which is bolted securely to the frame 10 is a rack 37 which is adapted to be slid in the guide bar longitudinally of the drum, and to attain this end the screw thread 35 of the drum head engages with the teeth of the rack whereby upon rotation of the drum the rack will be advanced longitudinally of the drum in a

direction corresponding with the rotation of the drum.

Securely bolted respectively to the top and bottom faces of the rack are brackets 38 and 39 each of which carry a pair of sheaves designated respectively by the numerals 40 and 41. These brackets are positioned about two inches more or less apart longitudinally of the rack so that their respective sheaves are disposed in parallel planes. These sheaves form means to feed on and pay off the cable uniformly from the drum during their travel longitudinally of the drum.

The cable 42 is terminally secured by suitable clamps 43 and 44 to the ends of the drum and is wrapped in a single convolution about the drum, passing from opposite sides of the drum through the respective sheaves 38 and 39 thence having the bight drawn out from the drum to the usual anchor sheaves 45 and 46, the scrapers 47 of any preferred type being attached to the drawn out bight in the usual and well known manner. Upon starting up the drum, the screw thread will advance the rack along the drum one tooth at each revolution of the drum whereby one convolution of the cable is paid off by one set of the sheaves and another convolution fed on to the drum by the other set of sheaves. Thus it will be seen that shortening of the bight of the cable by uneven winding on and paying off from the drum is positively prevented.

From the above description taken in connection with the accompanying drawings, it will be seen that I have provided an extremely simple and effective mechanism for uniformly feeding on and paying off of the cable from the drum, which mechanism is strong and durable and is constructed of a few parts that will not easily get out of order.

What is claimed, is:—

1. A winding mechanism comprising a drum, a cable having its ends secured to the drum and a portion wrapped about the drum, and means for uniformly paying off and feeding the cable upon the drum, said means comprising a longitudinally movable rack bar carrying guide sheaves, and a screw on said drum engaging said bar, whereby said bar will be moved synchronously with the rotation of said drum.

2. A winding mechanism comprising a drum, a flanged head thereon, a cable having its ends secured to the drum and a portion wrapped about the drum, and means for uniformly paying off and feeding the cable upon the drum, said means comprising a stationary guide, a longitudinally movable rack bar movable therein and carrying guide sheaves, and screw threads on said flanged head engaging the teeth of said rack bar.

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

BRODER KETELSEN.

Witnesses:

THOMAS KRYGER,

L. B. HARRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."