

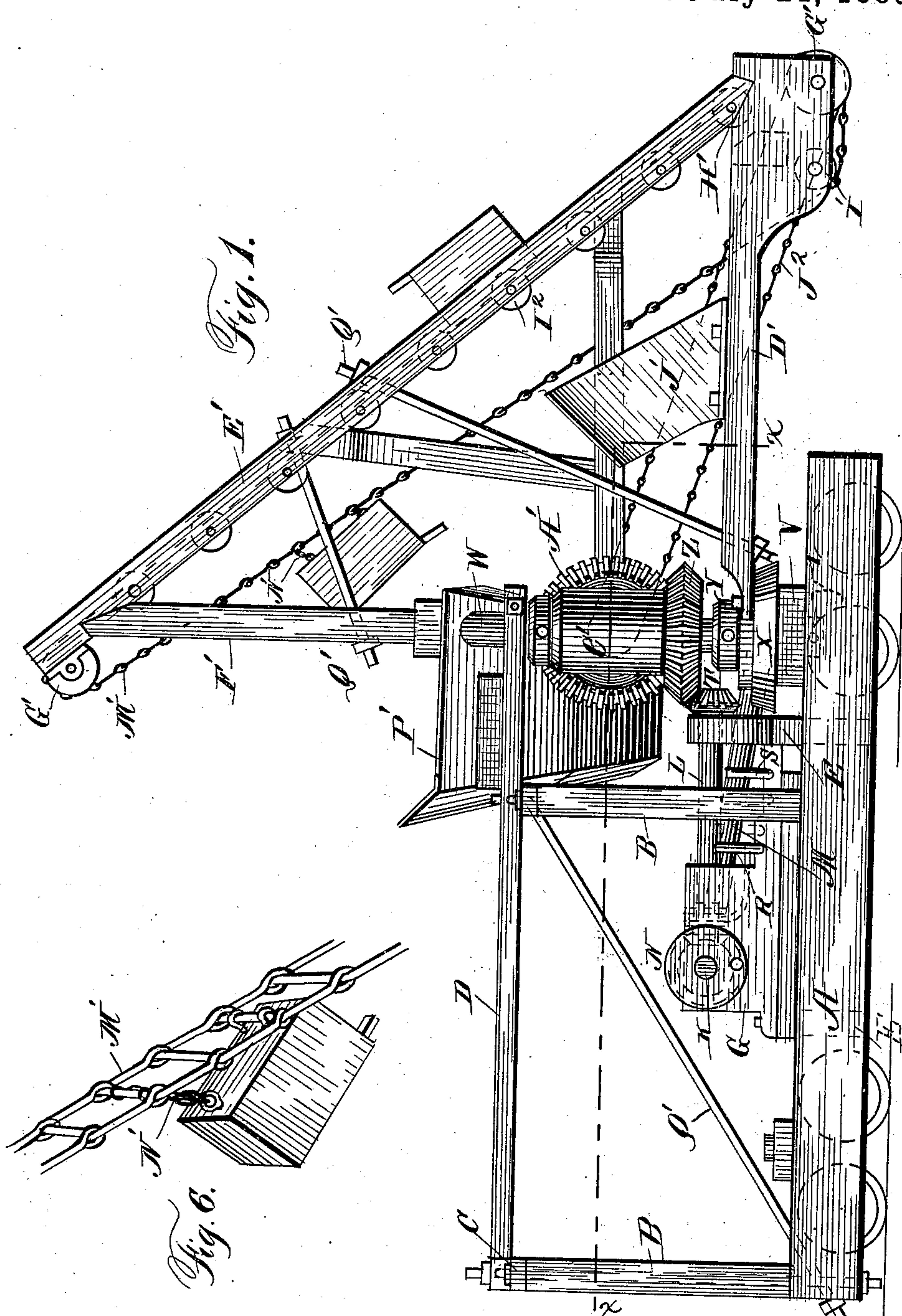
(No Model.)

H. J. SCHERFF & C. B. WOLF.
EXCAVATING MACHINE.

3 Sheets—Sheet 1.

No. 322,858.

Patented July 21, 1885.



Witnesses
Wm. H. Denton
Arthur L. Mossell.

Henry J. Scherff
Charles B. Wolf
Inventors
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attorneys

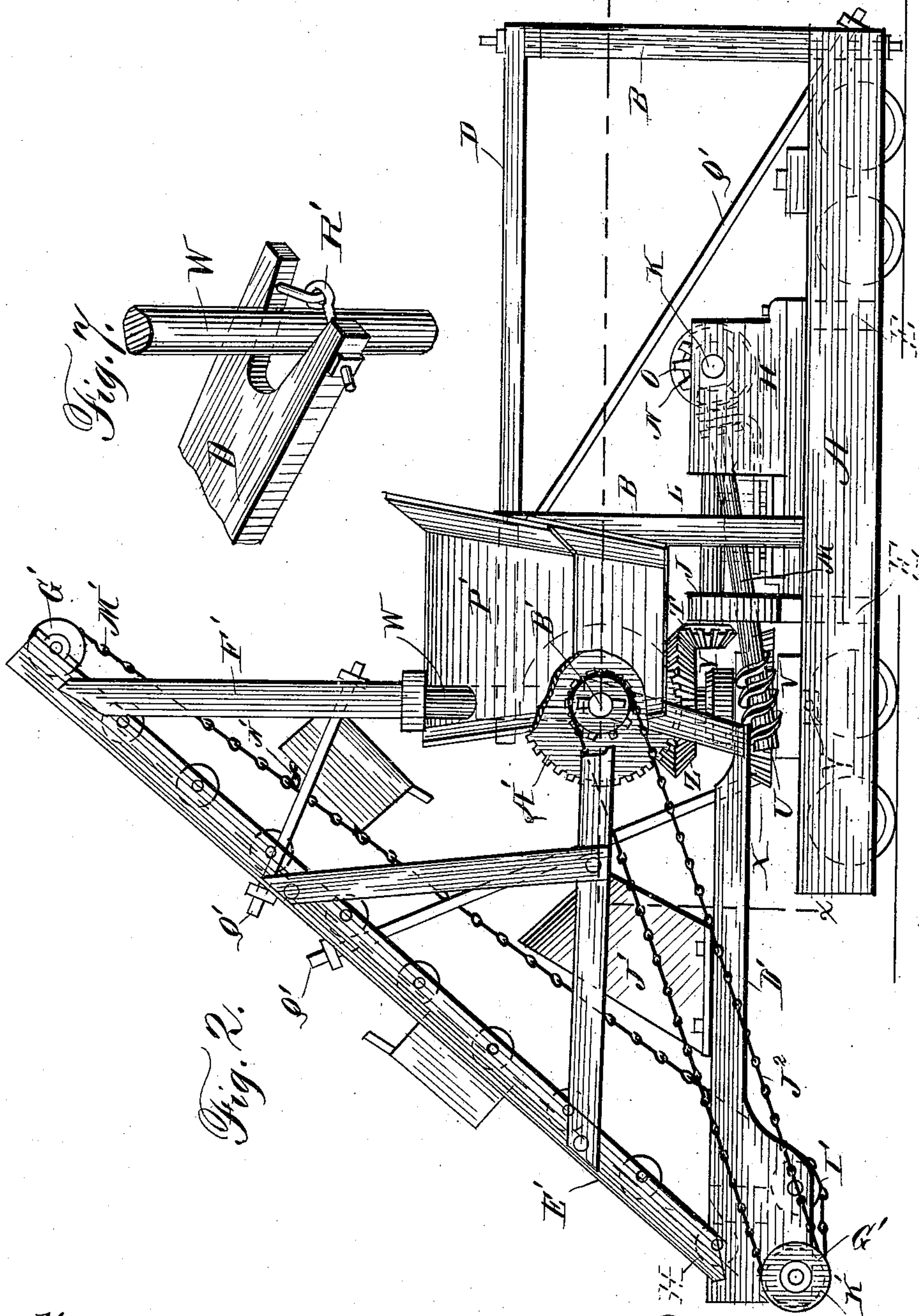
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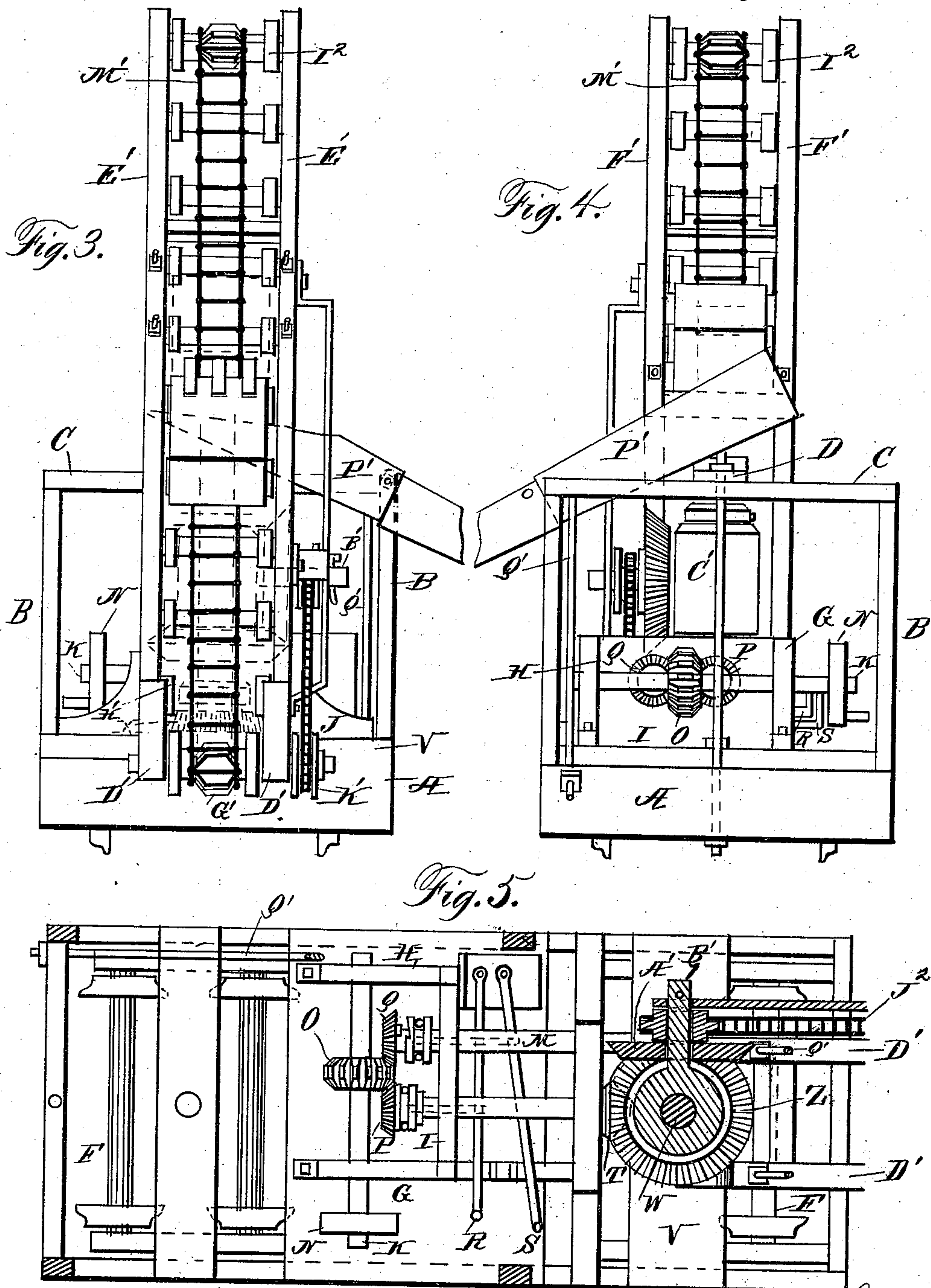
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3 Sheets—Sheet 3.

H. J. SCHERFF & C. B. WOLF.
EXCAVATING MACHINE.

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Patented July 21, 1885.



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UNITED STATES PATENT OFFICE.

HENRY J. SCHERFF AND CHARLES B. WOLF, OF PULASKI, KENTUCKY.

EXCAVATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 322,858, dated July 21, 1885.

Application filed May 15, 1885. (No model.)

To all whom it may concern:

Be it known that we, HENRY J. SCHERFF and CHARLES B. WOLF, citizens of the United States and residents of Pulaski, in the county of Pulaski and State of Kentucky, have invented certain new and useful Improvements in Excavating-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a view of one side of our improved excavating-machine. Fig. 2 is a view of the side opposite that shown in Fig. 1. Fig. 3 is a front view. Fig. 4 is a rear view. Fig. 5 is a horizontal section on line *xx* in Figs. 1 and 2, looking downward; and Figs. 6 and 7 are detail views, respectively, of the excavating-buckets and the yoke for the crane-shaft.

Similar letters of reference indicate corresponding parts in all the figures.

Our invention relates to excavating-machines, and our object is to provide a machine which shall be powerful, durable, and effective, and at the same time less complicated than most machines are that perform the same amount of work; and to this end our invention consists in the improved construction and combination of parts of such a machine, which will be hereinafter more fully described and claimed.

In the drawings, A denotes the frame of the machine, which has the uprights B and the cross-beams C and D. Between the sides of the frame A are secured heavy cross-timbers E and the trucks F, upon which the machine is mounted. Upright bearing-frames G, H, I, and J are secured to the frame of the machine, and between these bearing-frames are journaled the shafts K, L, and M.

K denotes the shaft to which the power is applied, and which has at its outer end the pulley-wheel N for the purpose, and at the middle of the shaft is secured a double-beveled gear-wheel, O, into which mesh the pinions P and Q, with their clutch-collars attached, for the purpose of engaging them when the levers R and S of the said clutch-collars are shifted. At the other end of the shafts L

and M are respectively a pinion, T, and a worm, U.

Near one end of the frame is secured a heavy plate, V, which forms a bearing for the lower end of the shaft W of the crane. At the lower end of this shaft is journaled a large circular disk, X, which has about two-thirds of its circumference cogged, and which has its lower face resting upon the plate V, and is held down firmly by a collar, Y, which is secured upon shaft W by a set-screw. Under the plate V a pin, Y', is inserted in a transverse hole in the lower end of the shaft W. Thus the shaft is rigidly braced in the plate V.

Journaled upon shaft W, above the collar Y, is a large double-beveled gear-wheel, Z, the lower cogs of which mesh with pinion T at the end of shaft L, and the upper cogs of which mesh with a large beveled gear, A', which has a sleeve on its outer side with sprocket-teeth, and which is journaled upon an axle or shaft, B', which projects horizontally from the large sleeve C' which encircles the vertical shaft W, and shaft B' bears with its outer end in a part of the frame of the crane.

D' denotes the lower frame-sills of the crane; E', the oblique timbers, and F' the vertical timbers. The sills D' are secured at their inner ends to the cogged disk X, and are made larger in their transverse vertical section at their outer ends, and are provided with bearings for the axles of the sprocket-roller G' and the rollers H' and I'. At or near the middle of the sills D' are secured guide-plates J', on their inner sides, to keep the shovels or buckets from striking the sills in their course. A sprocket-chain, J², traverses and connects the sprocketed sleeve of the gear-wheel A' and the sprocket-wheel K', which is secured upon the same axle as roller G'.

Between the timbers E', at equal intervals, are journaled the rollers I², which are made in the shape of a spool, the annular enlargements at the ends forming wheels for the buckets or shovels to run upon, and the smaller parts of the rollers form ways for the chain M' to run in.

The buckets or shovels are of the construction shown in Fig. 6, and are fastened to the carrying-chain M', about one-third of the distance from their tops, and have smaller chains N', connecting their lower ends to the carrying-chain M', so that when the bucket goes

over the uppermost roller of the crane and is about to tilt its load, the small chains N' will brace and hold the bucket from sagging from its position in relation to the main chain.

5 The worm or screw U at the end of shaft M engages the cogged disk X, and turns it when the shaft M is revolved, thus turning the crane.

P' denotes the chute, which may be made in sections, and when not in use may be folded.

10 The frame and crane are braced at different places by stout nutted rods Q'. The cross-beam D is bifurcated at the end adjoining shaft W, and between the forks thus made the said shaft is braced vertically and held in position
15 by a hinged bolt, R', which passes through these forks and is nutted at its outer ends. This bolt-and-fork combination gives a spring to the vertical shaft W.

When it is desired to set the machine in op-
20 eration, the power is transmitted from a stationary engine, which may be placed upon the platform, to the pulley N, which sets the shaft K in motion, and the lever R is shifted, thus engaging the pinion P, and its shaft L revolving the pinion T will engage with and turn
25 the large gear Z, and this gear revolves the gear A', with its sprocketed sleeve, and this sleeve operates the chain J², which in turn operates the sprocket-wheel K', with the toothed roller G', and the main or shovel chain M', and
30 the shovels catching their loads as they descend carry them over the crane, and dump them into the chute as the bucket goes over the uppermost roller.

35 Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

1. The frame A, the trucks secured between the sides of the said frame, the upright bear-

ing-frames for the several shafts, pulley-shaft 40 K, pulley-wheel N, double-beveled gear-wheel O, shafts L and M, provided with their loose pinions P and Q, and clutch-collars, levers R and S, for shifting said collars, worm U, and pinion T, in combination with the gear mech- 45 anism for working the buckets and turning the crane, substantially as and for the purpose shown and set forth.

2. The frame A, uprights P, cross-beam D, with its end bifurcated, hinged bolt R', plate 50 V, shaft W, cogged disk X, collar Y, and pin Y', in combination with worm U, the power-transmitting shafts and cogs, and the pinion-shifting mechanism, substantially as and for the purpose shown and set forth. 55

3. The combination of the frame A, having uprights and cross beams, as described, plate V, shaft W, cogged disk X, collar Y, double-beveled gear-wheel Z, sleeve C', and shaft B', projecting horizontally from said sleeve, gear 60 A', with its sprocketed sleeve journaled upon said shaft, the crane consisting of the sills D', oblique timbers E', and vertical timbers F', connected to the top of shaft W, sprocket-chain J², sprocket-wheel K', toothed roller G', 65 rollers I², carrying chain M', the buckets secured to the said chain, and the shaft-and-cog power-transmitting mechanism, substantially as and for the purpose shown and set forth. 70

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

HENRY J. SCHERFF.
CHARLES B. WOLF.

Witnesses:

A. WOLF,
J. E. CLAUNCH.