

*T. P. Timby,
Dressing Stone.*

2 Sheets, Sheet 1.

N^o 2,582.

Patented Apr. 23, 1842.

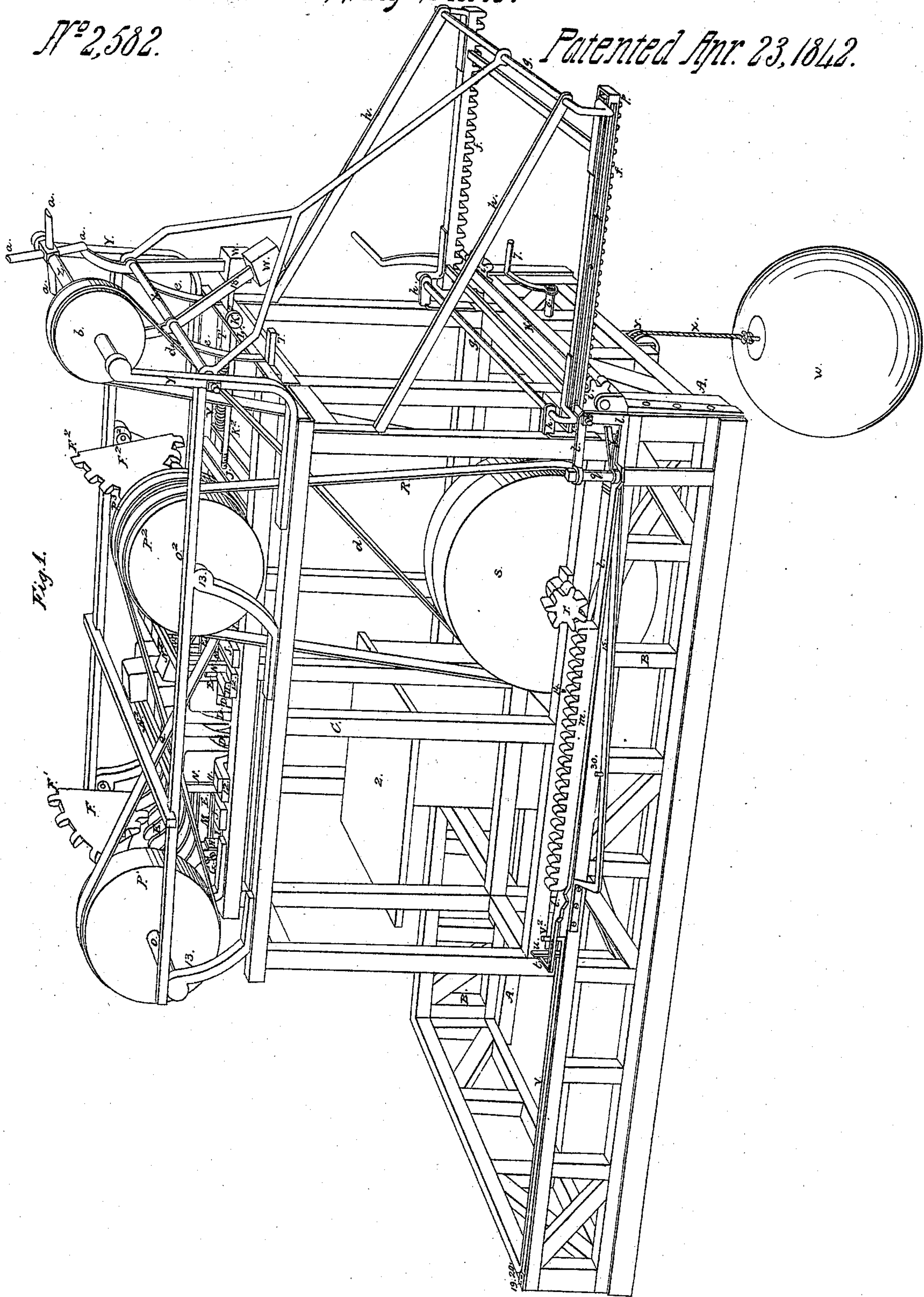


Fig. 1.

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Fig. 3.

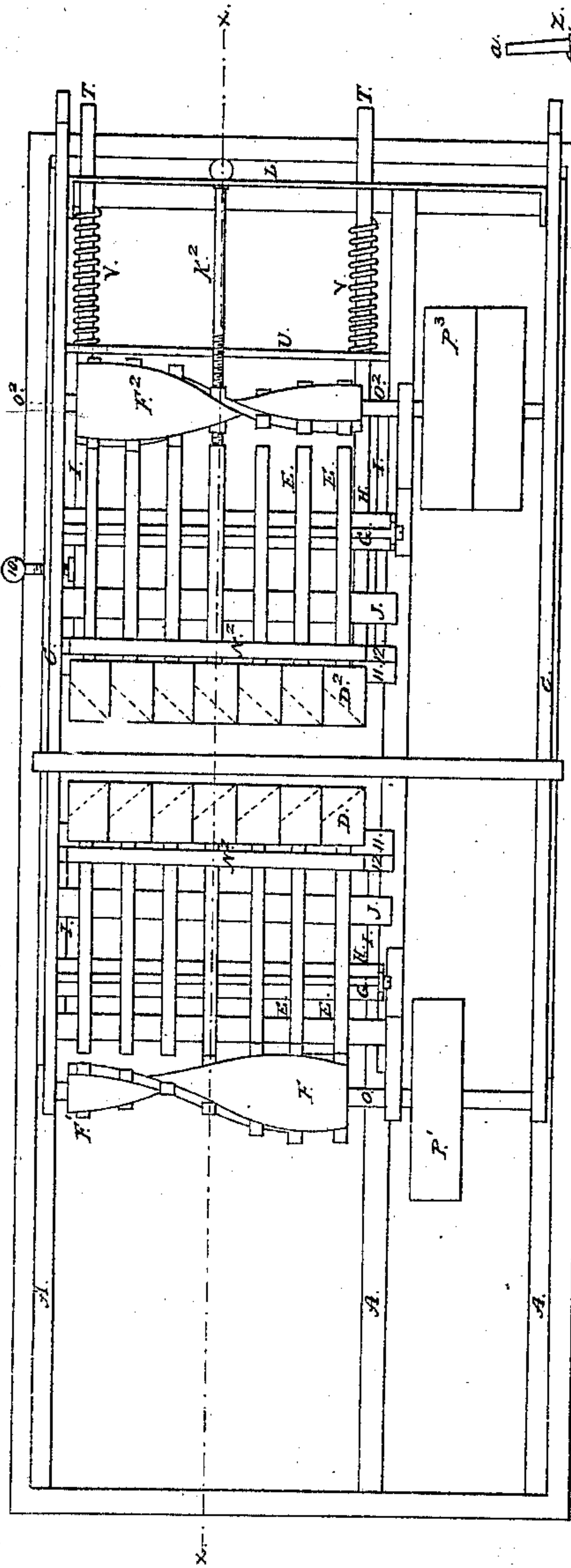
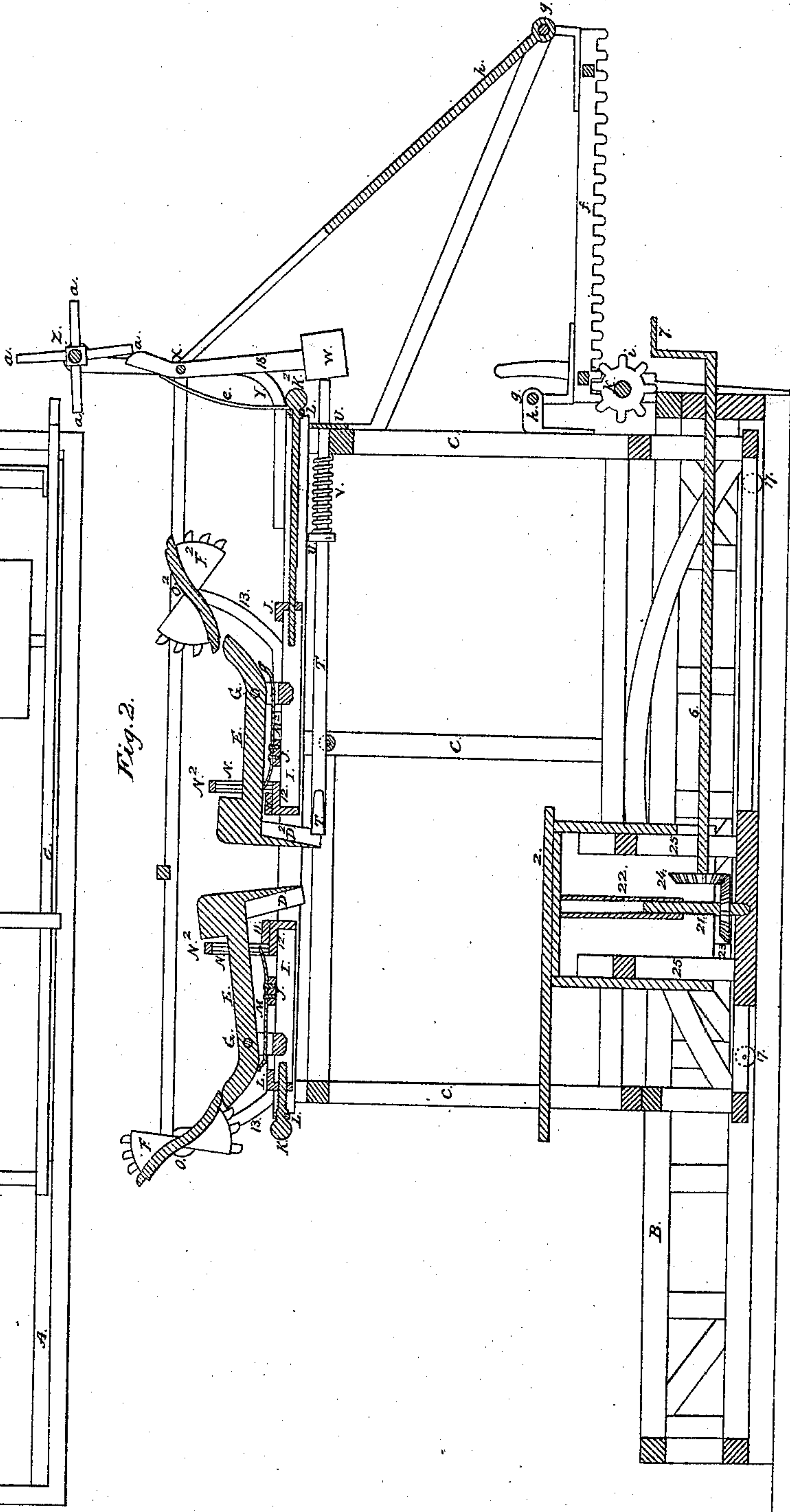


Fig. 2.



UNITED STATES PATENT OFFICE.

THEO. R. TIMBY, OF AUBURN, NEW YORK.

MACHINE FOR DRESSING STONE.

Specification of Letters Patent No. 2,582, dated April 23, 1842.

To all whom it may concern:

Be it known that I, THEODORE R. TIMBY, of the town of Auburn, in the county of Cayuga and State of New York, have invented a new and useful Machine for Dressing Stone, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The nature of this invention consists in a new combination of mechanical principles producing a machine for dressing stone that shall move backward and forward on wheels over parallel ways while the stone to be dressed remains stationary under it by applying the power to an axle turning in standards rising from a stationary side frame of the railway, on which shaft there are cog wheels that mesh into parallel longitudinal racks attached to the movable frame or carriage carrying the cutters causing said carriage to move over the stone and at the same time to turn a large drum on an axle in the carriage on which there is a cog wheel meshing into a rack attached to the frame of the railway which causes the said drum to revolve and by means of connecting bands to give motion to pulleys on axles of spiral cams which strike upon the ends of the handles of the cutters which act upon the stone in the manner of trip hammers forced down by the action of springs contracted in raising the hammers, and also give motion to other cams which move vertical hammers and act on horizontal right angled cutters for cutting away the corners of the stone, at right angles, to the depth of the required dressing and when the frame, carrying the cutters and hammers, &c., has passed over the stone a pin projecting from the side thereof to strike a catch of the last-mentioned rack hooked over a vertical pin of the frame of the railway when said rack is liberated and thrown sidewise and out of gear with the cog wheel on the main drum shaft by means of a spring and simultaneously to throw the other racks out of gear, the racks being all connected together by rods; which operation stops the forward motion of the frame and allows it to be drawn back instantly by a weight attached to a cord passed over a pulley in the railway frame and made fast to the movable frame to the rear and in running back to strike a dog spring which throws the racks again into gear when the machine advances

over the stone as before, the strength of the blow of the cutters being regulated by horizontal temper screws which act on the frame supporting the fulcrum of the levers and the stone being raised as the cutting progresses by a vertical screw and rising table fixed to the said screw.

To enable persons skilled in the art of constructing such machines to make and use my machine, I will proceed to describe its construction and operation, having reference to the annexed drawings of the same, of which—

Figure 1 is a perspective view. Fig. 2 is a vertical longitudinal section at the line *xx* of Fig. 3. Fig. 3 is a top view.

The railway upon which the frame (or as it may be termed the carriage) moves is composed of two, three, or more parallel rails A A A.

Permanent vertical frames B are constructed outside and against the outer rails, connected at either end by transverse frames about 2 feet high. These frames serve to guide the carriage and as a bearing for the main axle, and for turning rack, &c.

The frame or carriage C is rectangular, of any convenient size, strength, and material properly braced and moving on casters or wheels 17 over the rail way A.

This carriage carries the cutters, cams, drums, sliding racks, &c.

The cutters B for dressing the stone are fourteen in number, more or less, arranged in two transverse rows of seven each on the top of the carriage C, having handles or levers E, turned or curved upward at the ends struck by the cams F, the fulcrum of said levers being a transverse horizontal rod G passed through said levers near the curved ends and through standards H projecting upward from a horizontal rectangular metallic frame I placed on the top of the carriage C, which frame is made of cast-iron, having two parallel sides I I which move against the insides of the top timbers of the carriage C and transverse bars J which project beyond the sides so as to rest and slide upon the top of the carriage C. This sliding frame is moved back or forth on top of the carriage C by means of a horizontal set screw K in order to change the position of the cutters longitudinally so as to give the cam F a greater or less purchase on their handles or levers E which screw turns in a transverse bar L fixed to the carriage and in

a female screw in one of the cross bars J of the sliding frame.

There are as many springs M as levers and these are placed under the levers E in such a manner as to bear against them at both ends of each spring; said springs being slightly bowed and fastened to another of the transverse bars J of the sliding frame, the turned up ends striking against the under side of the levers. When the hammers or cutters are raised their levers E press down the ends of the springs M next the cams F by bearing on their ends and when the cutters descend and strike upon the stone the levers E at the same time strike the opposite ends of the springs M next the cutters which throw the cutters up from the stone as soon as the blows are given.

The levers E also strike upon a cross bar 11 of elastic wood, which is likewise placed on this sliding frame to prevent the levers from being bruised or broken.

The cutters D are about one inch square on their heads and are brought to an edge on the face, which edge will stand obliquely to the lever; all the edges of one row being parallel, as represented by dotted lines in Fig. 3. They are guided in their vertical movement by a guide rack N composed of upright rods or vertical posts N let into a transverse bar 12 of the sliding frame and their upper ends united by a cap N², two vertical rods or posts being arranged between each pair of levers E, said rack N being arranged between the fulcrum G and cutters D and near the latter.

The cutters are raised by revolving cast-iron spiral cams F placed over the curved ends of the levers whose axle O turns in bearings 13 fixed on the top of the carriage and at the sides thereof and on which axle is a pulley P' around which passes a band Q previously crossed which is conveyed to another pulley P³ on another axle O² of a second set of spiral cams F², said last-mentioned pulley being turned by another pulley P² on the axle O² by a band R passed around it said, band R leading directly to the main drum S, Fig. 1. The axle O² turns in bearings fixed on the top of the sides of the carriage C near the middle thereof.

A similar arrangement of cutters D², springs M, rack N², set screw K², &c., to those just described are placed near the center of the carriage C and the cutters D² are operated in the same manner as the others before described by spiral cams F² above mentioned. The cutting edges of the cutters, however, stand in an opposite directions to those first described, as represented by dotted lines, so that the cuts or channels made by the two sets of cutters will present two series of parallel channels crossing at right angles.

Two horizontal parallel longitudinal cut-

ters T whose cutting edges are made in the shape of the letter L for cutting away the upper corners of the block of stone to be dressed to the depth that they are required to be cut, are arranged in the carriage C at the sides of the oblique cutters D, moving horizontally in square apertures of corresponding size made in transverse metallic plates U fastened to the carriage having coiled or spiral springs V around them for the purpose of bringing them back to their original positions after being driven forward into the stone by the hammers W, W.

The hammers W W are suspended when at rest in a vertical position on a horizontal axle X turning in two standards Y Y fastened to the side of the carriage C and continued upward above said axle X to receive another axle Z lying parallel with that last mentioned on which there are cams or arms *a* for lifting the hammers W, being turned by a pulley *b* on said axle around which passes a band *d* leading to the main drum S.

The hammers W are driven against the horizontal cutters by springs *e* placed behind them. These hammers are plain rectangular blocks of metal fastened to the ends of levers 18.

The two horizontal parallel racks *f f* for moving the carriage C are connected together by cross rods *g* forming a metallic frame, which rods move loosely in apertures in arms *h* attached to the carriage C for the purpose of allowing the racks *f* to have a transverse movement toward or from the pinions or cog wheels *i i* in order to throw the racks in and out of gear with the wheels *i i* on the main driving shaft *k* when the advance movement of the carriage is to be arrested. These parallel racks are connected to the short end of a vibrating bar *l* to which is fixed a horizontal vibrating rack *m* the connection of the parallel racks with the rack bar *l* being accomplished by means of a rod having a head and neck, the neck moving in a groove or slit *o* in a side plate *p* attached to one of the parallel racks *f*, so that as these racks move with the carriage longitudinally back and forth the said connecting rod remains in the same place, the aforesaid slit or grooved plate *p* of the parallel racks moving over the neck of the rod, the head being between the plate and rack.

The bar *l* to which the rack *m* is fixed vibrates or moves around on a stud *q* inserted in the railway frame B near one of the rear corners thereof, said vibrating or horizontally turning bar *l* at the end connected with the parallel racks, and near its fulcrum, or the post on which it vibrates, is turned up vertically at right angles and then horizontally or at right angles with the vertical part, said horizontal part extending back as far as the head of the fulcrum or post,

where it is perforated to admit the upper end of said post. The other or long arms of said vibrating bar to which the rack is fixed is likewise turned at right angles horizontally and formed into a spring hook for hooking over a post inserted into the top of the side frame next the carriage C which is to get on the hook and disengage the rack bar *l* in the manner hereafter described.

The rod which connects the parallel racks to the other end of the said rack bar *l* is a round short rod of iron having one of its ends fastened to the vertical part of the bar *l*, while its other end is attached to one of the parallel racks; near which end it is reduced in diameter and formed into a neck for the purpose of allowing the aforesaid grooved plate fixed to one of the parallel racks to move back and forth over said neck and at the same time remain in gear with the connecting rod *n*, the head of said rod being larger than the slit or groove in which the neck is placed and being placed in a space between the plate and side of the rack formed by attaching the plate to the rack so as to form said space.

When the racks are to be thrown in or out of gear with the cog wheels *i i*, motion is communicated to the main drums, cutters, &c., by said rack *m* by means of a cog wheel *r* on the axle of the main drum *s*, which, as the carriage advances, works into the said rack and causes the drum to turn. When the carriage C has advanced as far as it is intended to go a cog or projection 14 on the side of the carriage strikes the hook *t* on the end of the vibrating bar *l* that holds the rack *m* in gear by hooking to the post *u* inserted into the side frame B; throws the hook *t* off from said post *u* and allows a spring *v* attached to the frame B by pins 19 and 20 and turned up at right angles at *v*² to throw the rack *m* outward from the carriage C upon a rest 15 fastened to the outside of the side frame against a pin 30 in said rest and out of gear with the cog wheel *r* and at the same time to move the parallel racks *f f* attached to the bar *l* sidewise and throw them also simultaneously out of gear with the cog wheels *i i* on the driving shaft *k*. The weight *w* then draws back the carriage C to its former position, which weight being attached to the end of the cord *x* passing over the pulley *y* on a horizontal pin in the transverse part of the rail from B, and whose other end is fastened to the carriage C.

The spring *z* or lever against which the carriage C strikes in running back, and which throws the racks *f* into gear with the cog wheels *i*, is made in the shape of a dog spring

of a gun lock and is attached to pin *q* inserted vertically into the rail frame B near the rear corner thereof, one branch of said lever *z* pressing against the inner side of rack bar *l*, the other branch being struck by the carriage C in being run back by the weight *w*.

The screw 21 for raising the stand (2) upon which the stone is placed stands in a vertical position and works in a female screw 22 formed in a stem projecting down from the underside of the stand 2, which screw 21 is turned by means of a horizontal bevel wheel 23 fixed to it into which a vertical bevel wheel 24 fixed on a horizontal shaft 6 works turned by a crank 7 on said horizontal shaft. The stand is steadied and kept in a vertical position by a fixed steadying frame 25 placed under it and in which the gearing is arranged and over which the table or stand rises and falls as required. A screw 10 is passed through the side of the carriage and is turned against the horizontal cutters T for crowding them toward the stone.

The number of cutters may be varied at pleasure, likewise the size and proportion of the several parts of the machine. The rest 15 for holding up the rack bar *l* and rack *m* when the hook *t* is disengaged from the post *u* and the rack bar *l* is thrown outward from the cog wheel *r* by the spring, consists of a bar of iron 15 fastened by one of its ends to the side of the rail frame B near the post *q* on which the rack bar turns on a level with the top of said frame, it then diverges from the same at an angle therewith of about 15 or 20 degrees and being extended at this angle about the length of the rack is turned toward the frame B and extended to it at right angles thereto, being fastened to the side of the same in a permanent manner and having a vertical pin or post 30 inserted into the aforesaid diverging part to arrest the outward movement of the rack *m* and hold it upon said rest.

What I claim as my invention, and which I desire to secure by Letters Patent, is—

1. The arrangement of the horizontal side cutters T in combination with the vertical cutters D operated by the springs M and the spiral cams F for raising them.

2. And I also claim the arrangement of the vibrating rack *m* and bar *l* in combination with the parallel racks *f f* for throwing the carriage C in and out of gear.

THEODORE R. TIMBY.

Witnesses:

WM. P. ELLIOT,
E. MAHER.