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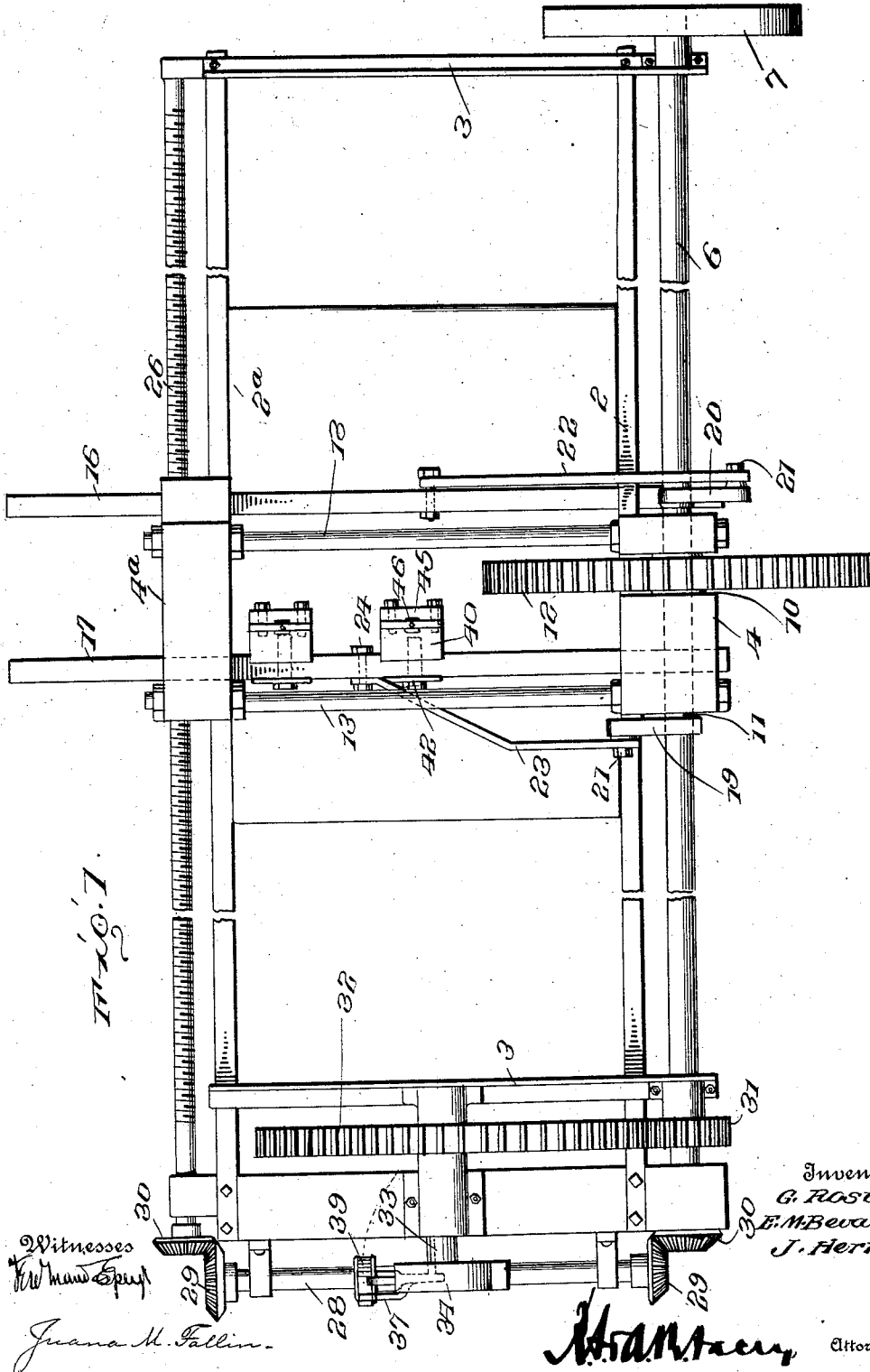
BLOCK SURFACING MACHINE.

APPLICATION FILED JAN. 20, 1912.

Patented Dec. 17, 1912.

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1,047,707.



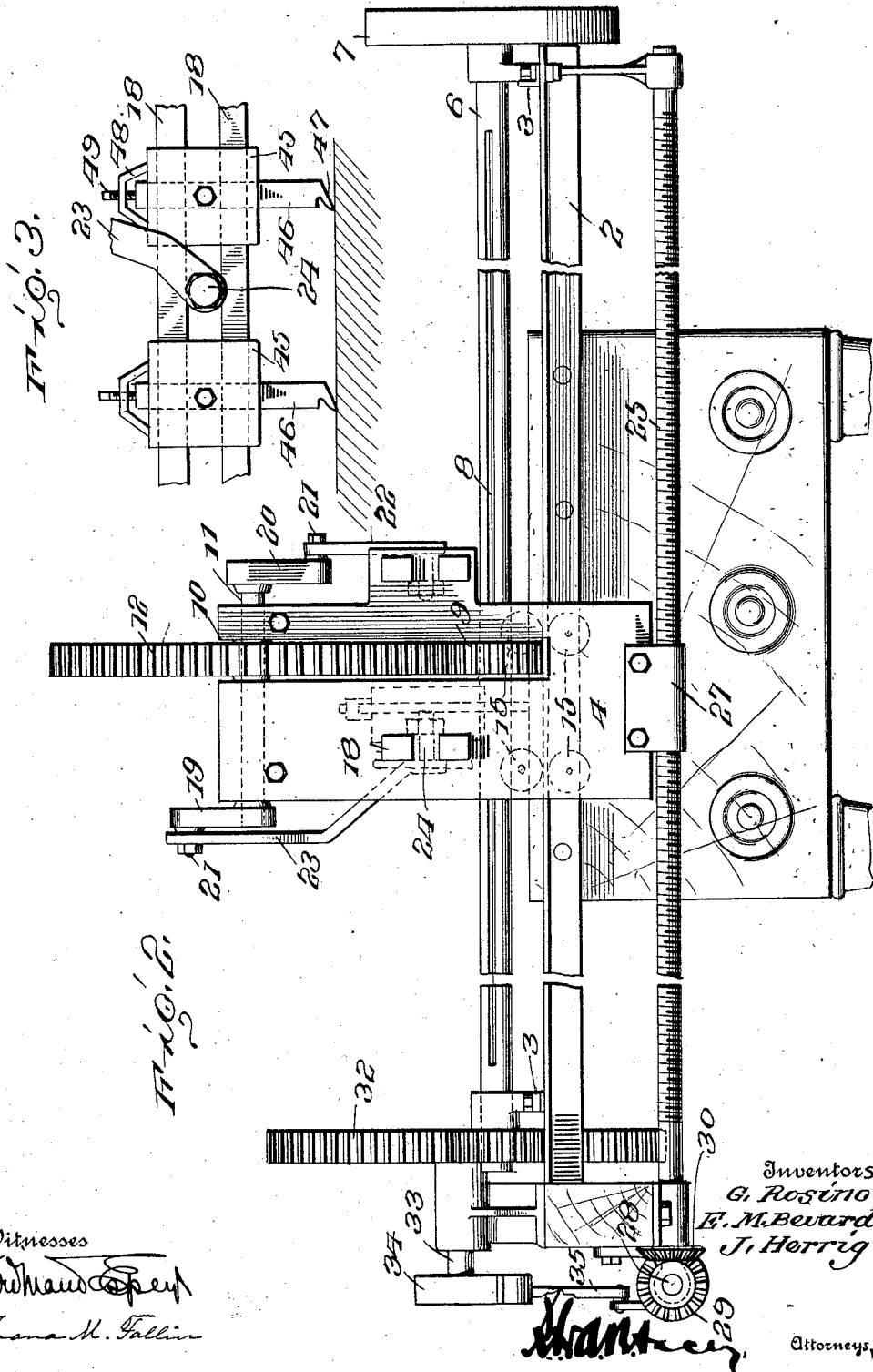
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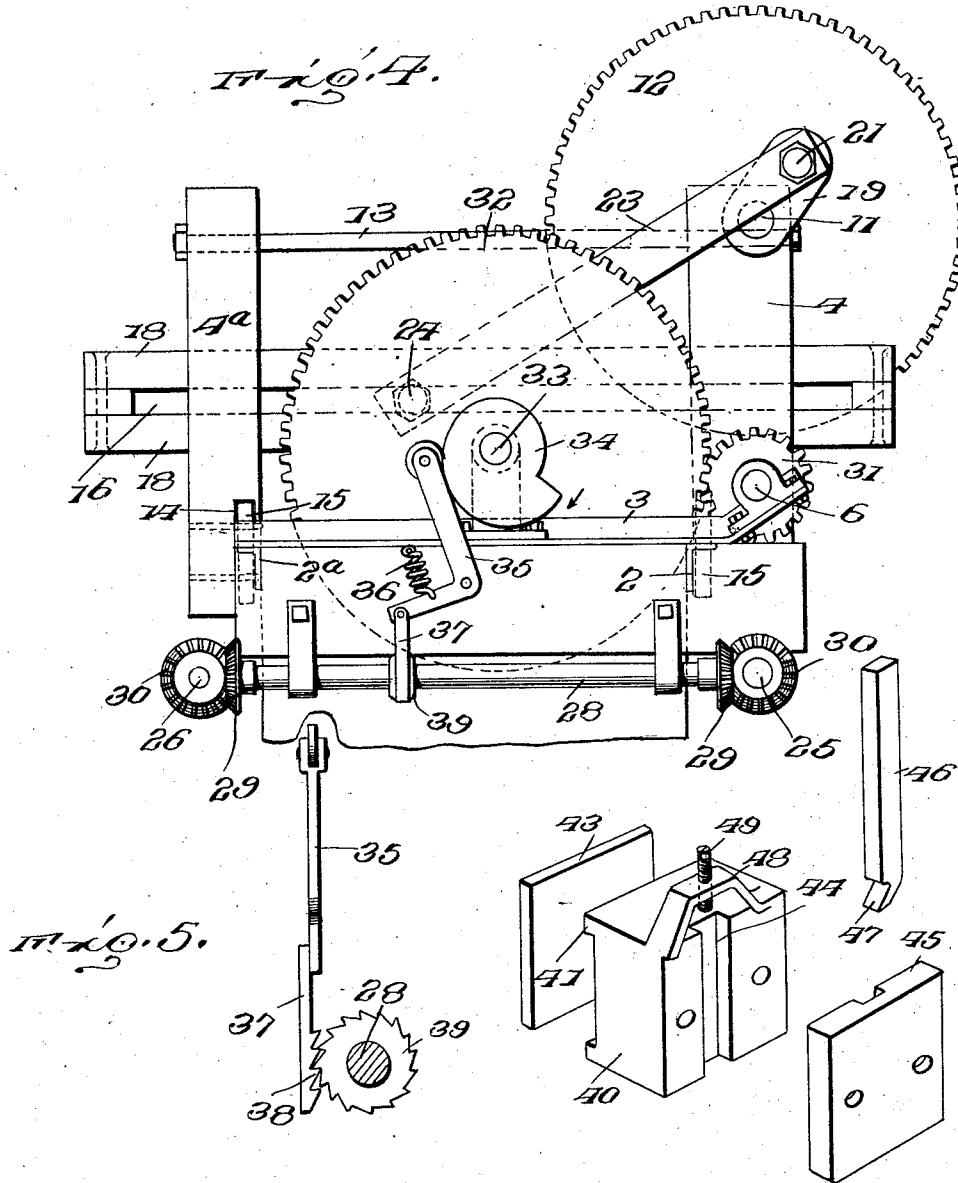
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BLOCK-SURFACING MACHINE.

1,047,707.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that we, GEORGE ROSINO, EDWARD M. BEVARD, and JOHN HERRIG, citizens of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Block-Surfacing Machines, of which the following is a specification.

Our invention relates to surfacing machines, and particularly to a machine for resurfacing, leveling and squaring meat blocks, such as are used by butchers, or blocks used under like circumstances. These blocks after meat has been chopped upon them become extremely rough and the surface is broken and splintered. When the broken and splintered surface has to be removed by means of a hand tool, it is extremely difficult to give to the block a relatively smooth surface which is level and square. Furthermore, the work of resurfacing a block of this character is very tedious and it takes so much time as to be expensive.

The primary object of our invention is to provide a machine which will effectively and economically remove the broken, cut and splintered surface of a block and resurface the same so as to provide a true, level and relatively smooth face to the block.

A further object in this connection is to provide a machine having means whereby it may be clamped upon a butcher's block and carrying surface cutting tools, with means whereby these tools may be reciprocated and simultaneously fed across the surface of the block from one end of the block to the other.

A further object is to provide a construction of the character above described in which the tool carriers are rigidly guided across the face of the block so as to cut a perfectly true surface and to provide means whereby the tools may be readily removed and replaced whenever desired.

Other objects will appear in the course of the following description.

Our invention is illustrated in the accompanying drawings wherein:

Figure 1 is a plan view of a block surfer constructed in accordance with our invention. Fig. 2 is a side elevation of the construction shown in Fig. 1. Fig. 3 is a fragmentary detail of a pair of tool carrier bars and the tool holders attached thereto. Fig. 4 is an end elevation of the construction shown in Fig. 1. Fig. 5 is a detail view of

the feed ratchet, the feed shaft being in section. Fig. 6 is a perspective detail view of one of the tool holders and a tool therefor, the parts being separated.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring now particularly to Figs. 1 and 2, it will be seen that the frame of our machine consists of the parallel, longitudinally extending frame bars 2 and 2^a and the transversely extending frame bars 3, these frame bars being connected to each other in any suitable or desired manner.

Slidably mounted upon one of the frame bars 2 is a traveler 4 having the form of a block, this traveler being connected at its lower end with certain feed devices as will be later described. Passing through the traveler 4 and mounted in bearings in the end frames 3 is a driving shaft 6 carrying at one end the driving pulley 7 or other means by which power may be transmitted to the shaft, and provided along nearly its entire extent with a feather or spline 8. Mounted upon the shaft 6 and rotatable therewith is a pinion 9. This pinion is splined upon the shaft by means of the feather 8 and as a consequence is longitudinally movable relative to the shaft while rotating therewith. The block 4 is formed with a cleft or vertically extending recess 10 which extends down below the shaft 6, and the pinion 9 is disposed in the lower end of this recess. Passing through the upper end of the block and rotatably mounted therein is a crank shaft 11 and mounted upon this crank shaft is a gear wheel 12 which meshes with the pinion 9 so that the rotation of the shaft 6 may be communicated from the pinion 9 to the gear 12 and thence to the crank shaft 11. It will of course be understood that the block 4 forming the traveler is slotted or cut out to receive the longitudinal frame bar 2 and travel thereupon.

Mounted upon the opposite frame bar 2^a is a vertically disposed block or traveler 4^a which slides upon the frame bar 2^a and which is connected rigidly to the block 4 by means of the transversely extending bolts 13, these bolts forming spacing members between the blocks and holding the blocks in rigid relation to each other.

The inside faces of the lower ends of the travelers 4 and 4^a are cut away as at 14 to

receive the frame bars 2 and 2^a. These frame bars as shown in Fig. 4 are angular in section, and mounted in the recessed portions 14 of each of the travelers are the upper and lower pairs of wheels 15 which bear upon the frame bars 2 and 2^a and provide means whereby the travelers may move easily along these frame bars. It will be understood, however, that we do not wish to limit ourselves to this particular way of mounting the travelers upon the frame bars 2 and 2^a as other means might be provided which would secure a smooth movement of the travelers over the frame bars.

Slidably mounted in the travelers 4 and 4^a for reciprocation transversely to the length of the machine are one or a pair of tool carriers designated 16 and 17. These carriers are both alike and hence a description of one will serve for a description of the other. Each carrier comprises a pair of spaced bars 18 spaced from each other at their ends and connected by bolts. These bars are of such cross sectional area as to be entirely rigid.

Mounted upon the crank shaft 11 are the oppositely disposed cranks 19 and 20, each having wrist pins 21, the wrist pin of the crank 20 being connected by means of a connecting rod 22 to the tool carrier 17, while the wrist pin of the crank 19 is connected by means of the connecting rod 23 to the carrier 16. While we have shown two carriers 16 and 17 and two cranks 19 and 20, it is to be understood that only one tool carrier might be used and that, therefore, the shaft 11 need be provided with only one crank. Preferably, however, two tool carriers are used.

The shaft 11 is provided with two cranks, and these cranks are set oppositely from each other so that the tool carriers 16 and 17 will reciprocate in opposite directions. Each of the connecting rods 22 and 23 is connected to its respective tool carrier by a transverse bolt 24 which extends through the slot defined by the upper and lower bars 18 of the tool carrier, this bolt being provided with a washer larger than said slot or space and with a nut whereby the tool carrier may be clamped rigidly into engagement with the connecting rod. Inasmuch as the slot between the bars 18 extends almost the entire length of the tool carrier, it will be obvious that the tool carrier may be longitudinally adjusted relative to the bolt 24. This applies equally well of course to the opposite tool carrier which is of precisely the same construction. Mounted upon the tool carriers are the tool holders shown in Fig. 6. These, however, will be described later.

It is necessary of course that the travelers 4 and 4^a should be given a longitudinal movement over the face of the block, and for

this purpose we provide the oppositely disposed feed screws 25 and 26. The feed screw 25 coacts with the traveler 4 while the feed screw 26 coacts with the traveler 4^a. Both the travelers 4 and 4^a are each provided with a nut 27 attached to the lower end of the traveler and interiorly screw threaded which surrounds and engages with the respective feed screws. The feed screws 25 and 26 are journaled at their extremities in the frame bars 3 as shown in Figs. 1 and 2 and are driven from a transverse feed shaft designated 28 and mounted in bearings on one end of the machine. This feed shaft at its ends is provided with beveled gears 29 meshing with beveled gears 30 of the screw shafts 25 and 26.

In order to give an intermittent rotation to the feed screws 25 and 26, we provide upon the shaft 6 a pinion 31 which meshes with a gear wheel 32 mounted upon a shaft 33 and disposed at one end of the machine. This shaft 33 carries upon it a cam 34 having a volute face which extends for a portion of its distance concentrically to the shaft 33 and then extends outward eccentrically to the shaft to a predetermined point, the surface of the cam then extending radially inward toward the center. Coöperating with the cam is a bell crank lever 35 having a roller mounted on its free end which travels upon the face of the cam 34. A spring 36 acts to force the free end of the bell crank lever against the face of the cam 34. The other extremity of the bell crank lever opposite the roller is connected to a pawl 37 carrying teeth 38 as shown in Fig. 5, this pawl coacting with a ratchet wheel 39 mounted upon the shaft 28.

It will be seen that as the cam 34 rotates in the direction of the arrow, Fig. 4, the free end of the bell crank lever 35 will be forced outward and the pawl 37 will be forced downward, the teeth 38 riding over the faces of the ratchet teeth 37. As soon as the portion of the cam having the greatest diameter has passed the roller on the extremity of the bell crank lever, the spring 36 will cause the free end of the bell crank lever to shift quickly inward and the short end of the bell crank lever will be raised, thus lifting upon the pawl 37. The pawl 37 will engage the teeth of the ratchet wheel 39 and will give a certain rotation to the shaft 28 which in turn will be transmitted to the screw shafts 25 and 26. The cam will be so set that this feeding movement will occur at the instant that the cranks 19 have reached an intermediate position and the tool carriers 16 and 17 have reached the end of their travel in one direction.

While we have illustrated a mechanism for securing a feed of the cutters which we believe to be entirely effective, we do not wish to be limited to this specific means as

it is obvious that many changes might be made in the mechanism without departing from the spirit of the invention.

It is, of course advisable that the mechanism should cut or level the face of the block upon a movement of the tool carrier 16 or 17 in either direction, and for this reason we have shown each of the tool carriers as being provided with a pair of tool holders, the tools carried by said holders being set oppositely to each other. It will be understood, however, that there may be one tool holder mounted upon the carrier 17 for instance and another tool holder mounted upon the carrier 16, and that the tools carried by said carriers will be oppositely set to each other or each carrier may carry a pair of cutting tools oppositely set to each other. We do not wish to be limited to this, nor do we wish to be limited to the specific manner of mounting a tool upon the carrier, but we have found that a very effective and rigid mounting is secured by providing a tool holder in the form of a block designated 40 and illustrated in Fig. 6. This block is rectangular in form and is provided upon one face with the outwardly projecting marginal flanges 41, the space between such flanges being just wide enough to engage on each edge of the corresponding tool carrier 18. It will be seen that this block 40 fits against one side of the tool carrier with its flanges 41 extending over the edges of the tool carrier. The tool holder may be shifted along the carrier to any desired position and clamped in position by means of a bolt 42 passing through the tool carrier between the bars thereof and extending into the middle of the block. This bolt 42 is provided with a relatively large and preferably square washer 43 which engages the side of the tool carrier.

The face of the block 40 is formed with a vertically extending tool channel 44, preferably rectangular in form, and a mating channel is formed in the face of a plate 45 which is bolted to the face of the block 40. The tool 46 may be of any suitable character but is shown as formed at its lower extremity with a cutting edge 47 particularly adapted for planing across the face of a wood block. The tool is set within the tool channel 44 and is held therein by screws which pass through the face plate 45 and clamp the tool in place. The tool may be vertically adjusted by means of a screw 49 which extends through a bridge 48 or bowed member which arches over the upper end of the tool holder. By turning down upon this screw, the tool 46 may be forced downward as the face of the butcher's block is cut away. It will be obvious that the carrier bars 18 may have any suitable form in cross section and that the contacting face of each block 40 will be made to fit the peculiar

form of the bars 18. If these bars are diamond shaped, the face of the block will be formed with diamond-shaped recesses, whereas if the faces of the bars are round, the face of the block will be formed with semi-circular recesses. Variation in this respect is entirely within the purview of our invention.

The operation of our invention will be plainly evident from what has gone before. The frame bars 2 and 3 are clamped in any suitable manner upon the block to be cut. Screws or bolts may be passed through the frame bars and into said block, said screws holding the cutting mechanism rigidly in place upon the face of the block. The travelers 4 and 4^a are initially of course at one end of the frame formed by the bars 2 and 3, and when power is applied to the shaft 6, the shaft will be rotated and the cutters will be reciprocated. Between each reciprocation of the cutters the travelers will be moved forward one step so that when the travelers have journeyed from one end of the frame to the opposite end thereof, the face of the block will be entirely cut away. This cutting away of the block by means of cutters which are supported in a rigid frame will resurface the block and give it a perfectly level and true surface at right angles to the side of the butcher's block. It will be obvious that a device of this kind will resurface a block, true it and square it in much less time than it can possibly be done by hand and much more accurately. The invention is simple, may be modified to suit any desired form of block, is easily applied and is entirely positive in its action.

While we have designed our machine particularly for facing butchers' blocks, it will be understood that it might be used for resurfacing or refacing any form of block to which it is adapted.

What we claim is:

1. A block surfacing machine including spaced bars engaging on each side of a block and constituting a frame, oppositely disposed travelers mounted on said bars for longitudinal movement and sliding therealong, a reciprocating tool carrier shiftable through said travelers, a tool holder mounted on said carrier for longitudinal adjustment therealong and adapted to support a depending tool, means for reciprocating said carrier, and means for automatically feeding said travelers along the frame from one end to the other.

2. A block surfacing machine including spaced side bars and transverse end bars, said bars constituting the frame and being engageable with the sides of a block, a pair of travelers, one mounted upon each of the side bars and shiftable therealong, connecting members extending between the travelers, a tool carrier extending between the

travelers and reciprocatingly mounted therein, a tool holder adjustably mounted upon said carrier for longitudinal adjustment along the carrier, a crank shaft upon one of the travelers, means for driving said shaft, a connecting rod extending between the crank shaft and said carrier, said connecting rod and carrier being relatively adjustable.

3. A block surfacing machine including a supporting frame adapted to engage a block, oppositely disposed, longitudinally movable travelers mounted upon said supporting frame and connected to each other, a reciprocating tool carrier mounted in said travelers, a crank shaft mounted upon one of the travelers and having a crank at one end thereof, a connecting rod extending between said crank and the carrier, a gear wheel mounted on the crank shaft, a driving shaft carrying a pinion with which the gear wheel engages, said pinion rotating with the shaft but being longitudinally movable with the traveler, screw feed shafts with which the travelers engage, and means actuated by the driving shaft for rotating said screw shafts to cause the travelers to move along the frame from one end to the other.

4. A block surfacing machine including a supporting frame adapted to engage the sides of a block and including spaced side bars, oppositely disposed travelers longitudinally shiftable on the side bars and connected to each other, a transversely extending tool carrying bar longitudinally shiftable through said travelers, a drive shaft on the frame, mechanism on one traveler driven from said drive shaft and reciprocating the traveler, a pinion on the drive shaft, a gear wheel supported on the frame and driven from the pinion, a shaft on which the gear wheel is mounted, a cam also mounted on the shaft, a transverse shaft geared to said screw feed shafts, and means operated by the cam for giving an intermittent rotation to said transverse shaft.

5. A block surfacing machine including a supporting frame having oppositely spaced side bars adapted to engage the sides of a block to be surfaced, oppositely disposed travelers slidably mounted upon said

side bars and connected to each other, means for feeding said travelers longitudinally along the side bars, a transversely extending tool carrier reciprocatably mounted in said travelers and comprising a pair of spaced bars connected at their ends, means mounted on the frame for reciprocating said carrier, and a tool holder adjustably mounted on the carrier and comprising a member having sliding engagement with the carrier, means for clamping a tool upon said member, and means for holding the member in any desired adjusted position along the length of the tool carrier.

6. A block surfacing machine including a supporting frame having spaced side bars, oppositely disposed travelers mounted upon said frame, each of said travelers having oppositely disposed antifriction wheels engaging said side bars, means connecting the travelers, feeding means engaging the travelers and feeding them simultaneously from one end of the frame to the other, a transversely reciprocatable tool carrier slidably mounted at its ends in said travelers, means carried on the frame for reciprocating said carrier, and tool holders mounted upon said carrier and tools depending from the tool holder, said tools facing toward each other.

7. A block surfacing machine including a supporting frame, a traveler mounted thereon, a reciprocating tool carrier mounted in the traveler and comprising spaced parallel bars, a crank shaft carried by the traveler, a connecting rod upon the crank shaft, a member carried on the end of the connecting rod and engaging the carrier within the slot thereof and adjustable along said slot, a tool holder engaging the slot of the carrier and longitudinally adjustable thereon, and a planing tool mounted in said holder.

In testimony whereof we affix our signatures in presence of witnesses.

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